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• JULY-AUGUST 1959 •

What Shall We Do to Preserve Freedom?

Edwin Vennard

Medallion Home Exhibited in Moscow

Commercial Sales Over the Postwar Era

R. D. Farrer

Mechanically Printed Bills of Material

Fred Warmbier

PUBLISHED BY EDISON ELECTRIC INSTITUTE

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

(Includes Investor-Owned Companies, Cooperatives, and Government-Owned Utilities)

March 1958-1959

SOURCE AND DISPOSAL OF ENERGY—MONTH OF MARCH

	1959	1958	%
NET GENERATION* (Kwhrs in Thousands)			
By Fuel Burning Plants	46,326,740	39,916,705	+16.1
By Water Power Plants	12,024,820	12,706,490	− 5.4
Total Generation	**58,351,560**	**52,623,195**	**+10.9**
ADD—Net Imports Over International Boundaries	260,182	397,051	−34.5
Less—Company Use	175,410	157,620	+11.3
Less—Energy Used by Producer	1,577,139	1,266,638	+24.5
Net Energy for Distribution	**56,859,193**	**51,595,988**	**+10.2**
Lost and Unaccounted for	5,485,250	4,893,413	+12.1
Sales to Ultimate Customers	**51,373,943**	**46,702,575**	**+10.0**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of March 31			
Residential or Domestic	49,435,458	46,940,261	**
Rural (Distinct Rural Rates)	.....	1,645,725	**
Commercial or Industrial:			
Small Light and Power	6,481,370	6,211,934	**
Large Light and Power	318,321	307,153	+ 3.6
Other Customers	190,065	183,306	+ 3.7
Total Ultimate Customers	**56,425,214**	**55,288,379**	**+ 2.1**
KILOWATTHOUR SALES—During Month of March (Kwhrs in Thousands)			
Residential or Domestic	15,423,850	14,026,035	**
Rural (Distinct Rural Rates)	.....	786,586	**
Commercial or Industrial:			
Small Light and Power	8,886,273	7,830,705	**
Large Light and Power	24,999,818	22,155,663	+12.8
Street and Highway Lighting	497,393	462,742	+ 7.5
Other Public Authorities	1,166,916	1,041,135	+12.1
Railroads and Railways	332,555	351,825	− 5.5
Interdepartmental	67,138	47,884	+40.2
Total to Ultimate Customers	**51,373,943**	**46,702,575**	**+10.0**
Revenue from Ultimate Customers (Thousands)	**$859,070**	**$797,337**	**+ 7.7**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—for 12 months ended March 31, 1959			
Kilowatthours per Customer	3,429	3,244	**
Average Annual Bill	$86.75	$82.40	**
Revenue per Kilowatthour	2.53¢	2.54¢	**

* By courtesy of the Federal Power Commission.

** 1959 not comparable to 1958 due to Rural being in the process of reclassification. Rural data now allocated principally between Residential and Commercial.

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THE EDISON ELECTRIC INSTITUTE BULLETIN is published monthly, except bi-monthly in July and August, by the Edison Electric Institute, an association of electric light and power companies in the United States and its territorial possessions. Its affiliate members consist of private electric utilities in North, Central and South America and contiguous islands in the Western Hemisphere.

The objectives of the Edison Electric Institute are:

The advancement in the public service of the art of producing, transmitting, and distributing electricity and the promotion of scientific research in such field.

The ascertainment and making available to the members and the public of factual information, data, and statistics relating to the electric industry.

To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor, and employee.

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EEI BULLETIN

July—August, 1959

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AUGUST

9-12 ASME-AIChE 3rd National Heat Transfer Conference and Exhibit, University of Connecticut, Storrs, Conn.

11-14 International Association of Electrical Leagues Twenty-Fourth Annual Conference, El Cortez Hotel, San Diego, Calif.

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7-10 Illuminating Engineering Society National Technical Conference, Fairmont & Mark Hopkins Hotels, San Francisco, Calif.

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14-15 EEI Electric Space Heating & Air Conditioning Committee, Akron, Ohio

14-15 EEI-AGA 1959-1960 Accounting Division & Section Organization Meetings, Hotel Cleveland, Cleveland, Ohio

14-16 EEI Meter and Service Committee, Hotel Wentworth, Portsmouth, N. H.

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17-18 EEI Commercial Cooking and Water Heating Committee, Minneapolis, Minn.

17-18 EEI Home Service Committee, EEI Headquarters, New York, N. Y.

17-18 EEI Industrial Power & Heating Group, Treadway Inn, Niagara Falls, N. Y.

17-19 Public Utilities Association of the Virginias 41st Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

18 Oklahoma Utilities Association Gas Division Meeting, Biltmore Hotel, Oklahoma City, Okla.

21-22 EEI Sales Division Executive Committee, Roosevelt Hotel, New York, N. Y.

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24-25 Missouri Valley Electric Association Accounting Conference, President Hotel, Kansas City, Mo.

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1- 2 EEI Transmission and Distribution Committee, Rice Hotel, Houston, Tex.

5- 6 EEI Electrical System & Equipment Committee, Hotel Muehlbach, Kansas City, Mo.

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15-16 Southeastern Electric Exchange Engineering & Operation Section, Fall Meeting, Biltmore Hotel, Atlanta, Ga.

16 Oklahoma Utilities Association Electric Light & Power Division Meeting, Eastern District, Aldridge Hotel, McAlester, Okla.

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22-23 EEI Statistical Committee, The Homestead, Hot Springs, Va.

22-23 Southeastern Electric Exchange Accounting Conference, Shoreham Hotel, Washington, D. C.

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5- 6 Pacific Coast Electrical Association, Hawaiian Conference, Matson House, Honolulu, Hawaii.

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12-13 Electric Council of New England Third Annual Conference, Hotel Somerset, Boston, Mass.

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Private Property, the Free Market, Profit and Wage Incentives, Competition, and Government Regulation—not Government Operation—Are the Principles of the American System. Do They Work?

What Shall We Do to Preserve Freedom?

By Edwin Vennard

Vice President and Managing Director, Edison Electric Institute

WHAT shall we do about this problem facing Americans—this drifting away from the original concept of our society that the individual should take care of himself and be free—this drifting toward a society in which the government takes care of the people?

Let us remind ourselves of just a few signposts that indicate how far we have gone since 1930:

- Federal non-defense spending has increased from $2.6 billion in 1930 to $28.1 billion in 1959, or about 1000 percent.
- Federal government non-defense spending per family has increased from $86 in 1930 to $548 in 1959, or more than 500 percent.
- In December, 1954, Rowland R. Hughes, then Director of the Bureau of the Budget, said "(The Federal government) is, among other things, the largest electric power producer in the country, the largest insurer, the largest lender and the largest borrower, the largest landlord and the largest tenant, the largest holder of grazing land and the largest holder of timberland, the largest owner of grain, the largest warehouse operator, and the largest shipowner, and the largest truck-fleet operator. For a country which is the citadel and the world's principal exponent of private enterprise and individual initiative, this is rather an amazing list."
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- All taxes in 1930 took 13 percent of the national product, as compared to 29 percent in 1958, 2.3 times as large.
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- Inflation has robbed us all of nearly half the purchasing power of our dollars since 1930. The 1930 dollar is worth 57 cents today. If this continues, by 1989—30 years from now—it will be worth only 34 cents.

If these trends continue, what will our children face 30 years from now? Isn't it about time that we take a serious look at this situation and do something about it? And by we, I mean you and I—not someone else.

All history teaches us that if this trend continues we will finally have adopted a complete planned economy, the welfare state, the age-old system under which government controls and runs everything, where government is supreme and the individual is not free—the kind of system used in Russia today. We will have ended a great experiment in freedom under which we have built the greatest civilization and standard of living ever known.

It's Up to Us

This is not something the Communists are doing to us, although they do encourage it and are helping it along. This is something we Americans are doing ourselves, with our eyes open. We are free to stop it whenever we choose. We are drifting in this direction because we, as a people, are calling upon our government to do more and more of those things which Americans can and should do for themselves.

What shall you and I do about it? What is our individual responsibility as community leaders? That is a matter for each to decide in his own way. I have learned through research and experience there is much that I can do. Let me give you my analysis of the problem.

An address before Joint Civic Clubs and Chamber of Commerce, Butte, Mont., June 5, 1959.

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Then let's review the research and examine the tools with which we have to work. Finally, we shall see what results we can expect from the use of this information.

Analysis

In a free society, the government is responsive to the people. They will get what they want. Our problem has to do with people—their attitude, emotions, fears, hopes, desires and beliefs—their knowledge or lack of knowledge of business affairs and public affairs. We now have the means by which we can measure these factors with considerable reliability.

How many people want more government spending? How many want government-operated business enterprise? How many believe the government should guarantee them a living? Why do they want "more government?" To what extent is their thinking contrary to economic principles and facts—facts known to community leaders and not to others?

Over the past 25 years a great deal of scientific research has been devoted to this subject. All of this research discloses a strong correlation between a person's knowledge of facts and his attitudes and desires. The research indicates that facts can be communicated to people in all levels and walks of life, and further, that their attitudes change in proportion to their knowledge of the facts. The research indicates that when people know and understand economic facts, they tend to believe more in those principles which are the foundation of individual freedom.

Our analysis shows:

- People want more things. This is the strongest motivating factor having a bearing on our problem.
- Most people believe that workers are not getting a proper share of the fruits of their labor. They think profits are too high. They believe most of the corporate income goes to owners and top management, not to the workers.
- They believe that rich people get too big a portion of the total income and thus deprive the others of a fair share.
- People who believe these things seek to remedy what they believe are inequities by turning to the government. They call on government to control profits. They ask government and labor leaders to get them a bigger share of the national income. They call for high taxes on high incomes and government redistribution of wealth so that government can give them money, services and help. They believe government can tax corporations, not knowing such taxes are generally included in the prices the consumer must pay.

Until the facts about our free enterprise system are known and believed, we are going to witness continued demands for high government spending, for spending beyond income, and more demands for wage increases that cannot be met without raising prices—all of which are bound to create greater inflation. And, further, we are going to continue to witness demands for increasing government operation of our economy.

Research

The sampling of public opinion has become an important tool. In conducting our research, we first determined how many people wanted this "government-take-care-of-me society," which in this discussion we will call "collectivist" society. To measure this, questions such as the following were developed:

- Do you think the government should put a top limit on salaries?
- Should there be a limit on the profits a company can make?
- Are you for or against government ownership of banks?
- Should government control prices of commodities in peace time?
- Should the government guarantee jobs to all?

The validity of these questions was first tested upon two control groups, one group being people known by their public utterances to be believers in socialism or communism, the other control group being people who were known to be believers in free enterprise.

As might be expected, a high percentage of the control group believing in socialism answered these questions in the affirmative. "Yes, we believe in government operation of banks, in government operation of key industries, in government guaranteeing jobs to everyone and fixing prices in peace time."

On the other hand, a very high percentage of those believing in free enterprise answered these questions in the negative.

How They Answered

After the questions had demonstrated their validity, they were asked of representative samples of American people. What did the people answer to these questions?

The first test, made some years ago, showed that 38 percent of all the American people who answered these questions answered as did the Socialist control group. Nearly half of the people in the large cities gave similar answers. These people were not Socialists or Communists; they were Americans. Yet they believed the same things the Socialists believed.

The next step was to find out why people had these beliefs. To determine how well the American people understood their economic system, a number of fact questions were asked.

"What is the average profit in industry?" The average answer was 25 percent. "What is a fair profit?" The answer was 10 percent. People thought that industry was making two-and-a-half times what was fair. The fact is that profits on sales are running in the neighborhood of 4 percent and have been for years—less than half of what the people thought was fair.

Then a question like this was asked: "Let us take all the money of a corporation that goes to people, all the money left over after paying for material, supplies, rent, heat and the like. This is the money that is shared by owners and employees. What is your judgment as to the percentage of this money going to employees and the percentage going to owners?"

The average answer indicated that people believed 75 cents out of every dollar of this divisible income went to owners and only 25 cents out of every dollar to employees. The fact is that 87 percent of this divisible income goes to employees and only 13 percent to owners.

The next step in the study was to analyze the relationship between ignorance of economic facts and a person's ideology. To do this, the survey cards were divided into two groups. The cards of all the people who were informed as to the facts were put in one group, and those of people who were uninformed were put in another group. Then both sets of cards were run through machines to determine how the questions respecting basic philosophy were answered.

The results were enlightening. In the group of people who were well informed as to facts, only 25 percent tended to favor the collectivist ideology while 75 percent tended to support free enterprise. Among the group uninformed on facts, only 17 percent favored free enterprise. A whopping 83 percent of them favored collectivism.

Communication

Here, then, was a possible cure for the ailment of "Government, please take care of me." The problem seemed to resolve itself into one of communication.

From experience, we know that there are five requisites of any communications problem:

1. We must communicate the facts.
2. The facts must be believed.
3. The significance of the facts must be understood.
4. The facts must be retained.
5. The facts must cause a change in attitude.

Failure to make any one of these hurdles will result in the failure to do what we set out to do.

There are a number of ways we can meet our problem in terms of these five requisites. The approach can be national or local, but the facts are always the same. As an example consider the so-called conference technique. Here 20 or 30 men get together for group discussion under the direction of a conference leader, who may have been selected from within the group.

This technique calls for the presentation of facts from an authoritative source. The group then discusses the facts and their impact on the subject under discussion. There are no speeches. No one is told what to believe.

This conference technique, which is nothing more nor less than an organized discussion group, delivers the goods. Before-and-after measurements have confirmed this. Surveys made months after the discussions show that the facts learned through this method are retained; people do not slip back into their old beliefs with the passage of time. Remember, the approach that has been developed for this method of presentation can be adapted to other areas just as easily.

What Facts Should Be Communicated

Briefly, here is what I believe should be the first step that we, as managers of American business, should take. We should do this ourselves before we ask our neighbors to do anything. If we do, we can become an example for others.

A clear understanding of the workings of our economic system is necessary if a man is to understand where he fits in and how he can best go about improving his lot. The presentation which has been most effective in bringing about this understanding begins with an evaluation of our system. Does it work? Does it produce the things men want? Does it satisfy human needs? Does it allow men to live in dignity?

Picture a group of men seated around a table for group discussion under a conference leader. They begin by discussing why a man works in the first place. It develops that he works to satisfy his human needs.

If he lives alone, his problem is simple. He must either work or he will die. When men live together in groups, they must work out a pattern for group living. They must learn to respect the rights of others. But whether living alone or in groups, men must work if they are to live. It has always been that way. This may seem elementary, and it is. But remember, for years people have been led to believe "Somebody will take care of me."

The discussion turns to the American system. The men don't discuss whether it is good or bad or whether it can be improved. First, they try to see what it is and what it produces. Then, they compare it to other systems which use other methods.

The American system rests on five basic principles. They are:

1. Private property.
2. The free market.
3. Profit and wage incentives.
4. Competition.
5. Government regulation—not government operation.

These principles are thoroughly discussed.

Does the System Work?

The conference leader then says the group will begin to compare the American system to other systems in terms of making the things men want. He asks 16 of the group to assemble themselves around the table.

He says that these 16 men represent all the people of the world. One of them, he says, represents the American people, for Americans are only 1/16th of all the people in the world.

He shows how the world's land surface is divided by taking a pie plate filled with modeling clay and dividing it into 16 parts.

He gives 1/16th to the American, saying that he has this much land with which to work. The other 15 people get all the rest.

"Now let us divide up the world's goods," the leader says. He reaches into his kit and brings out five toy automobiles. These represent all the cars in the world.

He gives the American three automobiles and gives the other 15 people two automobiles to divide among themselves.

He takes two telephones from his kit. He gives one to the American and the other to the rest of the people.

He takes two radios and gives one to the American and one to the 15 others in the group.

He takes three television sets. Two go to the American and the third to the rest.

He gives the American three bottles of oil and hands out two bottles to be divided among the others.

He has a number of little packages of coffee. Since we drink half the coffee in the world, he gives half of them to the American.

He gives the American two light bulbs and then hands out three light bulbs for the 15 others. We use two-fifths of all the electricity in the world.

Figure 1

The American system has worked better than any other system the world has ever known. It has been estimated that American factories produce about half of all the world's goods. Our productive might has armed the free world twice in world wars. It stands ready to do so again, if need be.

This kind of demonstration with props makes a lasting impression. In the face of a record like this it cannot be denied that our system works well—far better than any of its competitors.

The leader then says: "Let us compare the productivity of our system with that of Russia."

Americans earn more with every month of work. An American factory worker can buy about six and one-half suits of clothes with a month's wages; a Russian can buy one-half of a suit. Americans earn more with every week of work. An American factory worker can buy about eight pairs of shoes with a week's wages; a Russian can buy about one-fourth of a pair of shoes. (Fig. 1.)

Americans earn more with every day of work. An American factory worker earns about $16 in an eight-hour day; on the same basis, a Russian's pay for one day would buy about $2.25 worth of goods. In city and urban housing, the American occupies 370 square feet, while the Russian occupies only 79 square feet. (Fig. 2.)

Americans can eat better than people in other lands. On the average, it takes about five minutes' work to earn enough to buy a pound loaf of bread in this country. In Russia, five minutes' work buys only one-third of a loaf. In this country, five minutes' work will earn enough to buy one-and-a-half pints of milk. Working for the same length of time, a Russian could buy only one-fourth of a pint.

In terms of human values, as well as of material goods, the American system has produced remarkable results. Since 1900 we have increased life expectancy from 49 years to over 69 years. The incidence of pneumonia, tuberculosis, diphtheria and typhoid has been substantially reduced since 1900. (Fig. 3.)

The infant death rate has dropped 74 percent since 1915, thanks again to our independent doctors, spurred on to accomplishments by the satisfaction that comes only to a free man.

We have been sending a larger proportion of our children to school. In 1910 only 59 out of each 100 boys and girls of high school age actually went to school. By 1956 about 88 out of 100 were going to school, and the proportion is still rising.

One of the great aids to financial security in America is life insurance. Year after year, Americans have been able to buy more security for themselves and their families in this form. In 1900, Americans owned $100 of life insurance per person. By 1955, the amount of life insurance in the United States was equal to $2,250 for every man, woman and child in the nation.

How Do We Share Our Wealth?

The record indicates that the productive capacity of free men is greater than that of men who are not free, both in a material sense and in terms of human values. After a look at this record the employee is impressed. He agrees with what he has seen, but his thinking is something like this: "Sure, we produce all these things, but I don't get a fair share. Most of it goes to the rich people and the big executives."

Logically, the next step is a discussion of the facts on how this wealth is shared. The conference leader doesn't say whether the system is good or bad. His

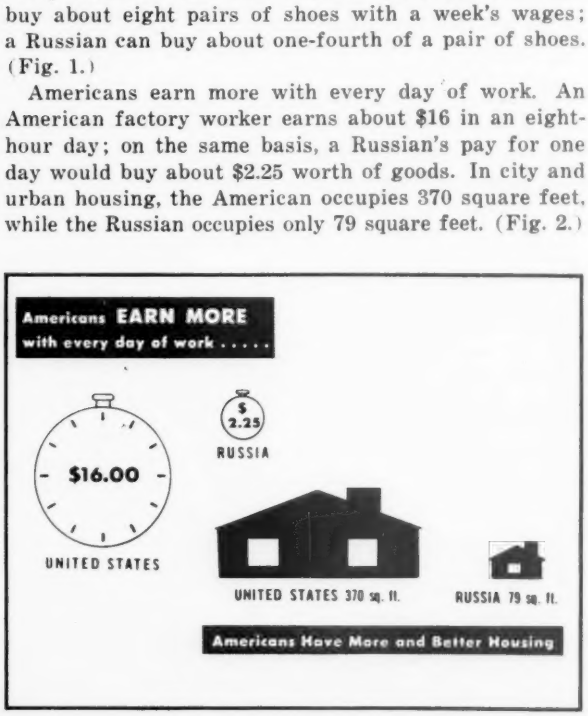


Figure 2

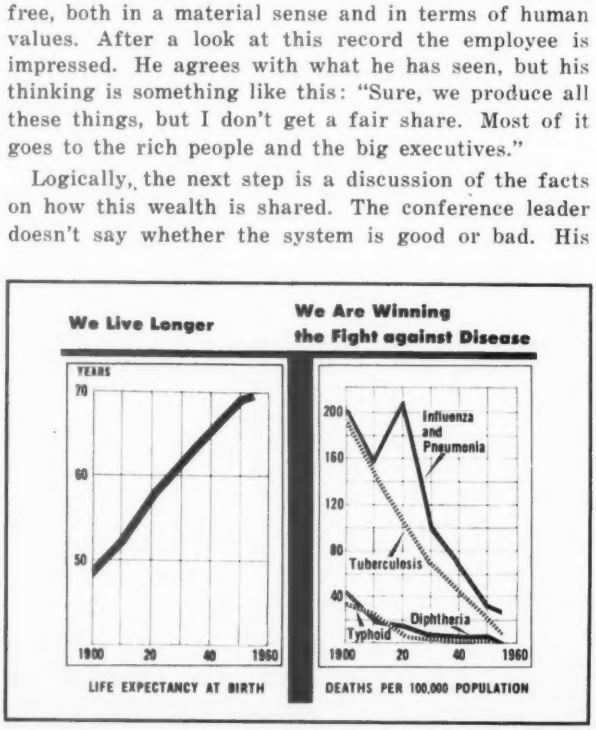


Figure 3

job is to present the facts so that they will be understood.

But before moving to this vital question of how the wealth is shared, the leader points out the sources of his information because he knows he is going to present some shockers.

His problem is to make the facts believable. Some of the areas of ignorance he will meet will be so ingrained that it will be difficult for facts to touch them. He has his source material available, right there on the table if necessary. From experience we know that the most authoritative source for this kind of presentation consists of government documents, particularly those published by the U. S. Department of Labor. Of course, the facts are the same, no matter what source is used. But in this discussion the leader will always cite the government record.

Here are some of the principal facts he establishes:

- The government record shows that profits on sales are about 4 percent, not 25 percent, as most people think. The other costs of business make up about 96 cents on every dollar of sales.
- Of all money in a corporation going to employees and owners, the employees get 87 percent, not 25 percent as people suppose; and the owners get 13 percent, not 75 percent.
- Employees receive more than 66 cents out of each dollar of national income. The owner-stockholders receive about six cents of each dollar of national income, and of this six cents about two-and-one-half cents are retained in the business for expansion, new machinery and similar uses. (Fig. 4.)

The conference leader asks the members of the group to picture what would happen if employees were to demand a raise of 10 percent in their wages. Where would the money come from?

It becomes obvious to the employees that they cannot get substantially more money by taking from the owners. It is not there. When a demand is made for a greater increase than the owners have or can pay, the owners can get it only by raising prices. If this happens, the worker does not get a raise in real income, for his dollar and his purchasing power are deflated.

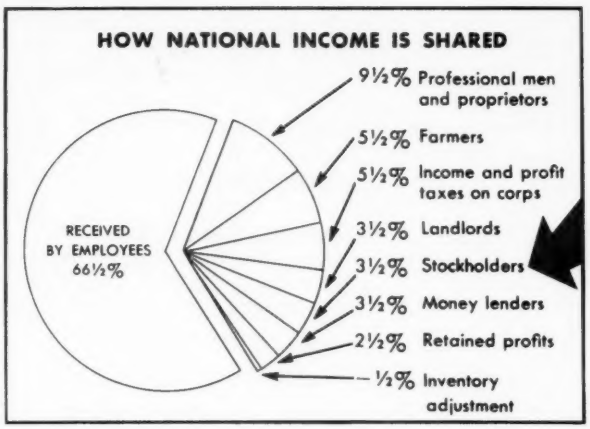


Figure 4

Next, the worker believes he can get his additional income by taking from the rich. But he is shown that, after income taxes, less than two percent of the national income goes to people with incomes of more than $20,000 a year. If all these rich people were to be shot and all their income divided equally among the people of the country, each would receive only 25 cents a day.

If money can't come from the owners, and it can't come from the rich people, the next suggestion is to get it from the government.

But this, too, is impossible. The government has no money of its own. It has no income except that which it first takes from the people. The facts disclose that the bulk of income going to the government comes from people like the employees around the table and that corporate taxes are simply a part of the price of a commodity paid for by these same people. (Fig. 5.)

How Do We Get More?

Now the employees are ready for a discussion of machinery and how it increases the standard of living. Only after the facts have been established and understood will they be ready to treat this question.

Figure 5

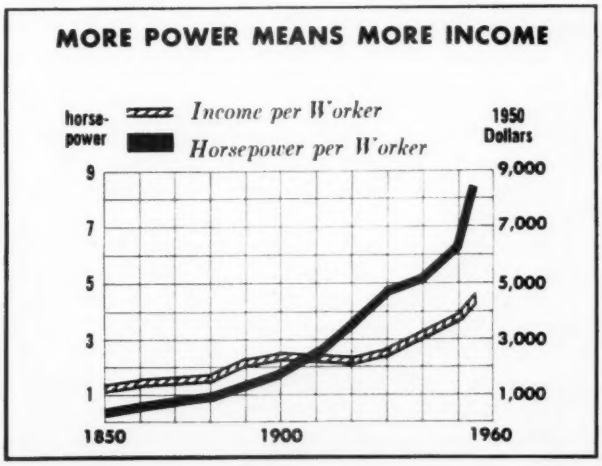


Figure 6

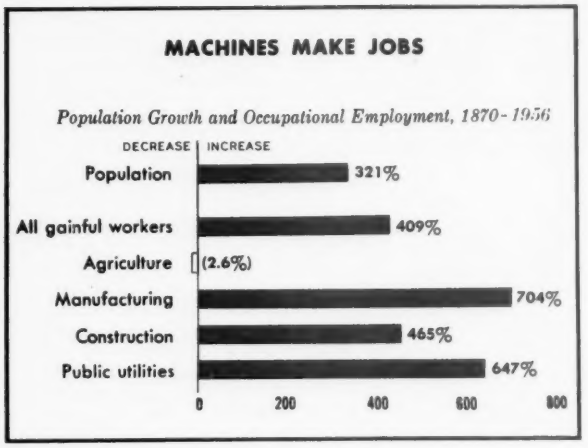


Figure 7

One of the chief reasons for the inflation we face in this country is the fact that labor costs are rising faster than output per man-hour. During the past 10 years the hourly compensation of workers in America has been rising at twice the rate of output per man-hour.

Unfortunately, many people do not realize the importance of this fact. They do not understand that the employee's slice of the national income is always about the same percentage and that the only way he can get more is by producing more. The bigger the pie, the bigger each slice will be.

But how can we produce more? We must make and invent better tools. In America, 98 percent of all our work is done by machinery.

With this machinery, each industrial worker has the equivalent of 374 helpers in the form of machines. If each man had 500 helpers, he could produce still more.

Machines increase production. One man at a machine working one minute can produce one unit. But one man working one minute at a better machine can produce three units.

More and better tools have cut the work week almost in half during the past 100 years. Because of more and better tools, an hour's work today buys more than five times as much as it did 100 years ago.

In America during the past 100 years the national income per man-hour worked has risen directly in proportion to the increase in horsepower hours per man-hour worked. In other words, the more machinery a man has at his disposal the more real income he can earn. (Fig. 6.)

This fact alone shows that Karl Marx was wrong. Marx thought that increased use of machinery would hurt the workers. The reverse has happened. The more machinery a worker has, the more money he can make and the more he can buy with that money.

Machines make jobs. During a period when our population grew 321 percent, the number of people employed increased by 409 percent. This happened while Americans were putting machines to work as fast as they could. (Fig. 7.)

How do we get more machines? Most workers do not furnish their own tools in this day and age. Can you imagine an advertisement like this? "Help Wanted: Stenographer. Must have your own desk, typewriter and filing cabinet." Or one like this? "Wanted: Locomotive Engineer. We furnish the tracks. Bring your own locomotive."

In America production is carried on through individuals or groups of people owning manufacturing companies. These companies furnish the tools and machinery for their workers.

The money to buy these tools comes from profits and from the savings of people who are free to invest, or not to invest, as they choose. We encourage people to save by paying them a reward, by giving them something for the use of their money. If we did not pay them this reward, they would not save. Some people call this reward a profit. Whatever it may be called, it is the factor that encourages a man to deny himself something from the fruits of his labor and to put the saving into the machinery of production through investments in companies and corporations. This is a primary factor differentiating our system from the Russian economic system in which government owns all the machinery of production.

The way our system provides the machines that are necessary to increasing production is simply this: to encourage savings by offering an attractive reward. This is the key of the American system. This is the people's capitalism at work.

It has been found that, as a result of this six-hour discussion program held over a six-month period, the areas of ignorance on economic facts and principles can be cut in half. This reduction in the areas of ignorance causes a corresponding reduction in the socialist or communist ideology. It is amazing that so much can be accomplished in so short a time.

What Shall We Do?

In conclusion, my experience teaches me there is much that I can do, and possibly a thought has occurred to you as to what you can do. Here is a summary:

- We ourselves should learn the facts about the American system.
- Let each of us resolve:
  1. We shall not call upon our governments, city, state or Federal, to do for us anything that we, as individuals or as groups of individuals, can or should do for ourselves.
  2. Where governments are now doing these things, we shall ask them to stop—now.
  3. In cases where we do decide that we should call upon governments for help, except in emergency, let us:
     a. Stipulate that the money will not be obtained by borrowing from future taxpayers.
     b. Stipulate that the money will not be obtained in a way to cause an increase in the cost of goods and services.

(*Continued on page* 287)

Medallion Home Exhibited in Soviet Capital

3½ Million Expected to View Live Better Electrically House in Moscow This Summer

"Splitnik," a duplicate of the Live Better Electrically Medallion Home which is part of the American National Exhibition in Moscow, has been built at Roosevelt Field, N. Y. (Top photo.) In lower photo, Edwin Vennard, right, Vice President and Managing Director of EEI, awards LBE Medallion to Herbert L. Sadkin, President of the company which built the house, as John J. Tuohy, left, President of Long Island Lighting Co., looks on. The house has an all-electric kitchen.

A FEATURE of the American National Exhibition which has been attracting a reported 50,000 visitors daily to Moscow's Sokolniki Park is a Live Better Electrically Medallion Home.

The all-electric kitchen of the house was the scene of the now famous informal debate between Vice President Nixon and Premier Khrushchev when Mr. Nixon opened the exhibition July 24.

About 3½ million Russians are expected to see the house, which received an LBE medallion from Edwin Vennard, EEI Vice President and Managing Director, now touring Soviet electric power systems and manufacturing facilities.

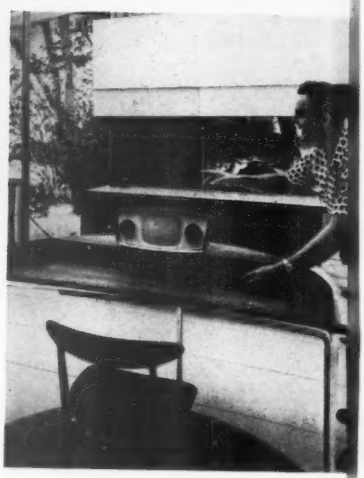
A duplicate of the "Moscow" home last month was awarded a Live Better Electrically Medallion at Roosevelt Field, N. Y. Participating in the ceremony were: Herbert L. Sadkin, President of All-State Properties, Inc., builder of the house; John J. Tuohy, President of Long Island Lighting Co.; and Edwin Vennard, Vice President and Managing Director of Edison Electric Institute.

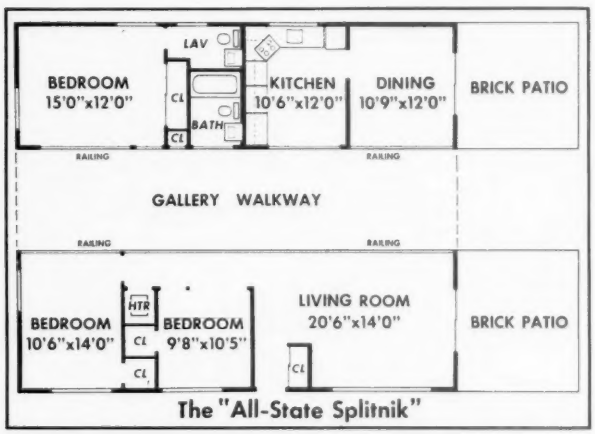
The one-story, six-room, ranch-type house has been named the "Splitnik" because of a 10-foot-wide gallery splitting the structure for exhibition purposes.

Visitors walking through the gallery will be able to look into the rooms on both sides of the house. It has

Household chores are accomplished at the flip of a switch in this RCA Whirlpool Miracle Kitchen now on display in Moscow as part of the American National Exhibition. By pushing a button or waving a hand, a floor cleaner will scrub, mop, vacuum, wax or polish floors; meals will be selected, cooked and served in seconds.

The control panel of the RCA Whirlpool Miracle Kitchen, below, allows the housewife to operate appliances without leaving her chair. The kitchen was built at a cost of about $250,000. It will give the citizens of the Soviet Union a glimpse of what the American housewife has to look forward to in electric appliance line.





The "All-State Splitnik"

The layout of the Splitnik Live Better Electrically Medallion Home, above, now on display in Moscow's Sokolniki Park shows the 10-foot gallery walkway from which 3½ million visitors are expected to view the home this summer. The kitchen of the house, below, was the scene of the Nixon-Khrushchev debate.

three bedrooms, a living room, kitchen, dining room and a bath and a half, all completely furnished and equipped.

General Electric Co. has provided the all-electric kitchen and the furnishings were supplied by Macy's.

Mr. Vennard pointed out that, according to the American Bankers' Association and home financing institutions, more than half the American families can afford to own the Splitnik type house. In Commack, N. Y. the house sells for $14,490, including lot.

Citing the importance of Medallion standards for the Moscow exhibit home, duplicated at Roosevelt Field, Mr. Vennard stated that these electrical values are within the price range of the average new home buyer in America. These values in all-electric living, he added, are significant signs of the advanced level of ease and comfort by which an average American family can live and are well within the budget of most Americans who spend slightly less than $100 a month for their homes.

Mr. Vennard said more than 100,000 Medallion homes have been built in America during the first three years of the program. In a few years it is anticipated that 10 percent of all new housing will meet Medallion standards.

In addition to the all-electric kitchen in the exhibit home, a $250,000 "miracle kitchen" will be displayed by RCA Whirlpool, and an all-electric kitchen from Westinghouse Corp. also will be shown.

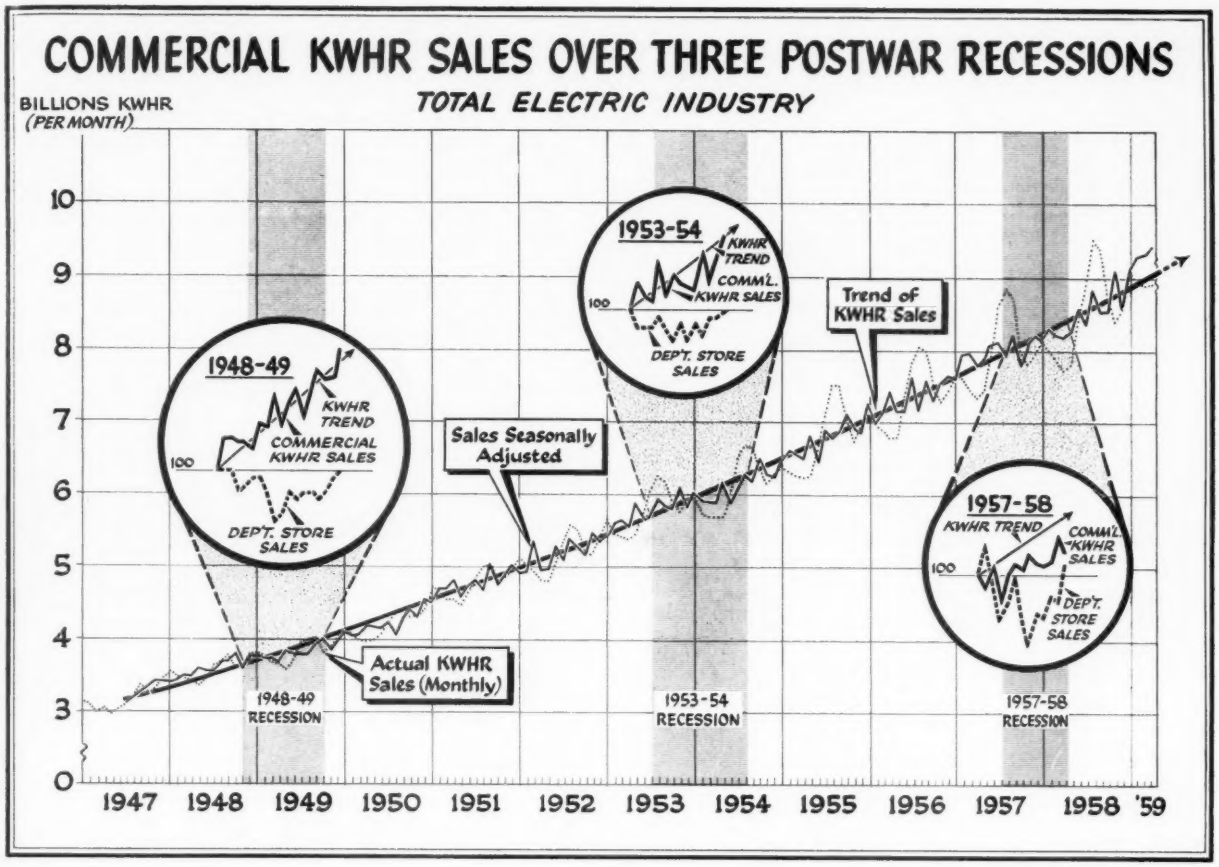


Figure 1

Since World War II, Energy Sales to Commercial Customers Have Reversed Completely—from a Winter to Summer Peak—and the Effect of Recessions on Energy Demands Has Been Mild

Commercial Sales Over the Postwar Era

By R. D. Farrer

EEI Staff Economist

ENERGY sales to commercial (small light and power) customers since the war have exhibited several patterns of behavior. Long-term (secular) growth has been firm, about the same magnitude as total energy sales; seasonal variation has seen a complete reversal, moving from a winter to a summer peak; and cyclical variation, that is, the effect of recessions on energy demand, has been relatively mild.

These patterns of behavior are presented in the chart (Fig. 1). The light, dotted line is *actual* monthly kwhr sales to commercial customers. From the data, the seasonal variation experienced by this segment of the electric business can be seen clearly. In the first few years following the war, before the advent of widespread air conditioning, energy demand peaked at year end, although summer business already showed strong signs of overtaking it. By 1953, the nation experienced its first overall summer peak in commercial service, and supremacy of the summer peak has grown each year since. For example, last year, after trend adjustment, demand for

energy by small light and power customers during the peak summer month was roughly 10 percent greater than maximum winter demand. These data indicate a widening between summer and winter peaks of about 2 percent a year since 1953. Some industry economists feel the disparity will get worse before it gets better.

The chart also depicts the history of kwhr sales after seasonal adjustment. This is shown by the thin solid line moving about the heavy growth curve on the chart. By compensating for seasonal variation, this line represents the combined secular and cyclical activity of kwhr sales. And this line tells an interesting story.

The three postwar recessions have been shaded in on the chart. In addition, three enlarged views of the recessions are shown above the shaded areas with a comparison between the seasonally adjusted kwhr sales, its historic trend, and the behavior of a general economic indicator—department store sales. Department store sales data, as compiled by the Federal Reserve System, were used in this presentation to represent, mostly by analogy, the effect the recession had on the business of our commercial customers. (The above are converted to comparable index numbers, with 100 equaling the peak month of the economic activity, as defined by the National Bureau of Economic Research.) This detail was added to the chart to illustrate the impact of three postwar recessions on the commercial class of service.

1948-49 Recession

Turning first to the 1948-1949 recession, it can be seen that this decline had little influence on commercial demand. Kilowatt-hour sales, seasonally adjusted, held close to the historic trend line, while other economic barometers fell to storm warning levels. (See enlargement showing pattern of 1948-49 recession on the chart.) Assuming department store sales were typical of the business conditions experienced by the Commercial sector, it took approximately a year and a half for them to regain the ground lost during the recession. By the same token, kwhr sales to this group during the same time increased on an annual basis (seasonally adjusted) from 43 to 50 billion kwhr, a 16 percent improvement. From these data, then, it can be concluded that the 1948-49 recession had no significant effect on this class of service.

Following the Korean War the United States economy suffered another business decline. According to research economist Geoffrey Moore of the National Bureau of Economic Research, the 1953-54 recession was the second mildest of the seven trade cycles since 1920. The enlargement of the 1953-54 period on the chart supports this conclusion. At first, department store sales fell a few percentage points, moved laterally for nine months and then climbed back quickly. Former levels were restored by August, 1954. During this 13-month downswing kwhr sales to commercial customers moved up firmly, holding closely to the historical trend. However, on closer examination it appears the seasonally adjusted kwhr sales dropped away from the trend about two-thirds through the recession (i.e., April, 1954), which would indicate mild sensitivity to the business cycle. Comparison between the 1948-49 and 1953-54 enlargements bears out this conclusion.

The 1957-58 recession was the worst in 20 years. The enlarged area for this period on the chart illustrates the point. Business of commercial customers, in the aggregate, was severely hurt and utility sales to them reacted in the same way. It took 12 months for department store sales to work back to former peak levels. During the downswing, the historical trend of kwhr sales to commercial customers clearly moved above *actual* (seasonally adjusted) kwhr sales. It was August, 1958, before kwhr sales once again joined the long-term growth curve. Sensitivity to the cycle is patently evident.

Pattern of Recessions Emerges

Looking back over the three recessions, and the impact they made on energy demands, an emerging pattern can be seen. The first recession had no effect at all; the second, a mild impact; and the third, the recession of last year, definitely hurt commercial utility sales. What are the explanations? What does this mean for the future? The signs seem to point in the direction of increased sensitivity to the business cycle. Future recessions probably will follow the pattern of last year.

The commercial class of electric service has enjoyed a strong secular growth since the war. On an annual basis, kwhr sales have increased from about 30 billion in 1945 to 101.2 billion in 1958, a rise of nearly 240 percent in 13 years, amounting to an average rate of growth of 9.7 percent per year. By way of comparison, the trade and service industries, e.g., barber shops, department stores, gas stations, etc., have had a real (constant dollar) growth in business of about 50 percent since the war. These industries are, by and large, the principal customers in commercial class of electric service. The available data suggest the volume of business activity of these customers increased about one-fourth as much as their consumption of electricity over the postwar period.

The future of the commercial class of service looks relatively bright. If the present trend continues, by 1970 this sector of the electric business will use about 220 billion kilowatt-hours per year, an increase of 117 percent over the record 101 billion kwhr in 1958. Such a rate of growth would be less than that of the postwar period (1946-1958), but still substantial. And while greater performance in this sector is certainly possible, especially in our dynamic, service-oriented economy, utility management in future years will probably encounter a slowing down in the rate of growth unless they take special means to counter the present trend.

Commercial Pattern Changes

The commercial class of service is an important segment of the electric utility business. Traditionally it has represented about 18 percent of total kwhr sales, and, of greater interest, accounted for roughly one quarter of electric revenues. During the postwar era utilities have seen the character of its demand change considerably: that is, a summer peak replaced the winter peak; a cyclical sensitivity has been felt by most companies; and a gradual decreasing rate of growth experienced. These facts suggest the need for constant evaluation of current and projected trends lest this class of service adversely affect the long-term objectives of electric utilities—a continuation of the present rate of growth in sales and load factor.

Representatives of nine southwestern electric utility companies study and discuss some of the materials in the EEI employee information courses at Trinidad, Texas, covering "The American Economic System" and "American Freedom."

Nine Companies Participate in Training Program for EEI Employee Information Courses

TWENTY-ONE representatives of nine southwestern electric utility companies joined in a week-long program of training in EEI's employee information courses, "The American Economic System" and "American Freedom," early in June.

In school facilities provided by Texas Power & Light Co. at Trinidad, Texas, the utility men examined and discussed the material covered in the courses as well as the techniques of conference leadership used to present them to employees. The training program was held June 1-5.

Utility Companies Represented

Utility companies represented were: Dallas Power & Light Co., El Paso Electric Co., The Empire District Electric Co., Public Service Co. of Oklahoma, Southwestern Electric Service Co., Southwestern Public Service Co., Texas Electric Service Co., Texas Power & Light Co., and West Texas Utilities Co. Robb M. Winsborough, Vice President, Middle West Service Co., Chicago, served as instructor.

The two EEI courses are part of a program designed to give utility employees more information about their industry and the tree economic system of which it is a part.

"The American Economic System" is the first phase of this program. The course materials, which consist of six filmstrips, a 96-page booklet, a demonstration kit and Conference Leader's Manual, have been prepared to present the facts about the free enterprise system clearly and simply. The course includes discussions of such subjects as the historical basis and characteristics of America's economic system; how Americans have achieved the highest standard of living in the world through the development of tools, machines and power to increase production; how new jobs and new industries are created by the investment of individual savings; how relatively small profits are; how employees, stockholders and others share the national income; and how adherence to American principles will produce even greater benefits in the future.

The course includes a dramatic demonstration of the great wealth which Americans have developed for themselves, in sharp contrast to what other economic systems have produced.

While "The American Economic System" course deals

specifically with economic topics, "American Freedom" fits them into historical perspective and demonstrates that our economic and political freedoms are closely connected.

In the Course

The course materials, which include three filmstrips, a 64-page booklet, and a Conference Leader's Manual, describe the settling of America and the organization of its government, the present dangers to political and economic freedom in this country, the background and development of socialism and communism in this country and abroad, and the things that must be done to retain freedom in America.

A third phase of the program, dealing with the economics of the electric utility business, is in the process of preparation. Presented in their proper order, the three-part EEI program will give utility employees a broader understanding of their country and their industry and lead to a better comprehension of company policies and operations.

The EEI programs are presented to utility employees through conferences of 20 to 30 men under the direction of a conference leader. This conference technique calls for presentation of facts from authoritative sources. The group then discusses these facts and their impact on the subject under discussion. No one is told what to believe. The group's conclusions arise out of their discussions of the facts.

At the Trinidad training school major emphasis was placed on the content of the courses, the method of presentation, the principles of conference leadership, and the handling of questions employees could be expected to ask during course sessions.

To date, some 36 electric utility companies have presented, or are presenting, "The American Economic System" and "American Freedom" courses. Further information concerning these courses, or future training schools for conference leaders, may be obtained by writing Prall Culviner, Editorial Director, Edison Electric Institute, 750 Third Ave., New York 17, N. Y.

Duquesne Light Wins Second Safety Council Award

Philip A. Fleger, left, Chairman and President of Duquesne Light Co., accepts the National Safety Council's Award of Honor for 1958 from Carl B. Pollock, President of Western Pennsylvania Safety Council. This was the company's second successive award.

DUQUESNE Light Co. has received for the second successive year the National Safety Council's Award of Honor, the Council's highest tribute to industry for accident prevention throughout the United States. Duquesne Light earned the award on the basis of a 68 percent improvement in accident frequency and a 96 percent improvement in accident severity.

Duquesne Light also placed first in the Public Utilities Section of the National Safety Council among the largest electric utility companies in the country—those which average more than 400,000 man-hours of work per month.

Industry Executives Tour USSR

TEN U. S. electric industry executives are now touring Soviet electric power systems and equipment manufacturing plants.

The inspection trip, is expected to last about two weeks. It is the second sponsored by EEI and the Association of Edison Illuminating Companies, under the auspices of the U. S. Department of State.

Members of the American group, headed by Walker L. Cisler, President, The Detroit Edison Co., are: Harvey E. Bumgardner, Assistant to President, The Detroit Edison Co., and Chairman of Technical Exchange for Overseas Visitors Committee, EEI; James F. Davenport, Executive Vice President, Southern California Edison Co.; Charles E. Eble, President, Consolidated Edison Co. of New York, Inc.; Lewis R. Gaty, Vice President of Research and Development, Philadelphia Electric Co.; Donald S. Kennedy, Past President, EEI and Chairman of the Board and President, Oklahoma Gas & Electric Co.; Francis K. McCune, Vice President—Atomic Business Development, Marketing Services, General Electric Co.; Alexander C. Monteith, Vice President, Apparatus Products, Westinghouse Electric Corp.; Edwin Vennard, Vice President and Managing Director, EEI; J. Perry Yates, Executive Vice President, Bechtel Corp.

Fatalities Last Year Dropped to 86—25.9 Percent Below 1957 and the Lowest Rate in 14 Years

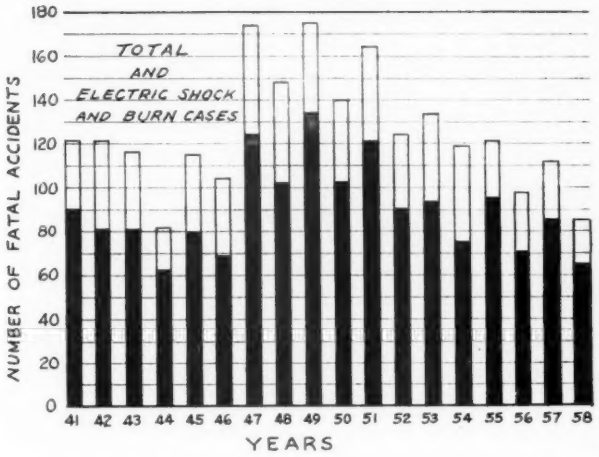


Figure 1

Analysis of Fatal Accidents in the Electric Light and Power Industry in 1958

By S. H. Young
The Hartford Electric Light Co.

FATAL accidents in the electric light and power industry in 1958 dropped to 86, the lowest number since 1944. This figure was 25.9 percent below that of 1957 and 34.8 percent below the average for the past 10 years. The severity rate declined 22.9 percent from that of 1957.

In the past 18 years the lowest number of fatalities, 82, occurred in 1944, and the largest number, 176, occurred in 1949. Since 1942 the fatal accidents curve has fluctuated with no two years in succession showing an improvement over the previous year. For example: in 1956, the total was 97; in 1957 it rose to 112, and in 1958 dropped to 86.

Although the fatalities in 1958 were at a 14-year low point, 75.5 percent—or 3.9 percent more than the 18-year average—was attributed to electrical shock or burn.

Fatalities Decline in Many Areas

In five other areas the 1958 figures were less than the 18-year average, and in two areas they were higher. Falls accounted for 5.8 percent of the fatalities in 1958, compared to an 18-year average of 11.2 percent. Other causes, with the 1958 percentages compared to the 18-year averages (in parentheses) are: motor vehicles, 3.5 (6.6); struck-by, 3.5 (4.3); burned, 1.2 (1.7); caught-in, 7.0 (1.5); drowned, 2.3 (1.4); miscellaneous, 1.2 (1.7).

The review and classification of fatal accidents is compiled from detailed reports submitted to Edison Electric Institute by the companies where fatal accidents occurred.

In view of the action taken at the last meeting of the EEI Accident Prevention Committee to make a con-

ELECTRIC SHOCK AND BURN FATALITIES
TEN YEARS 1949 - 1958

		1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	TOTAL
LINE WORK OR POLES: Contacts made while climbing or in working position but without cutting out or losing balance.	Hands	28	25	26	26	14	25	27	16	24	17	228
	Arms	21	14	14	11	11	9	16	8	6	7	119
	Head	7	7	1	7	7	5	5	2	1	1	43
	Neck	0	0	1	0	2	2	0	0	0	0	7
	Body	12	5	4	1	7	4	4	2	5	3	47
	Shoulder	0	0	4	3	4	0	4	4	6	0	25
	Leg or Foot	3	3	1	1	3	1	0	4	2	1	19
	Unknown	6	2	5	2	0	0	0	0	3	0	18
	Flash	0	0	2	1	3	3	4	2	0	1	16
Cut Outouts		6	3	5	4	2	0	0	0	1	1	22
Slips & Lost Balance		2	0	0	0	2	1	3	1	0	2	11
Possible Heart Case		0	0	0	0	0	0	0	1	1	0	2
Line Work from Ladders		0	1	1	0	0	0	0	0	0	0	2
Line Work from Hyd.Tower		0	0	0	0	0	0	0	1	2	1	4
Line Work in Trees		0	0	0	0	2	1	1	1	1	0	6
Line Work on Ground		15	9	9	10	9	6	2	5	13	8	88
Surveying		0	0	0	2	0	0	1	0	0	0	3
St. Light Replacement		0	0	0	0	0	2	2	0	0	0	4
Energ. Cranes & Trucks		0	0	3	1	2	0	3	4	5	4	22
Underground		2	2	0	2	0	1	0	1	0	1	15
In Basements		0	0	2	0	2	1	0	0	0	1	6
TOTAL OF ABOVE		102	71	83	71	70	58	80	52	72	48	707
AT STATIONS & REPAIR SHOPS		32	31	38	19	23	17	15	18	14	17	224
TOTAL		134	102	121	90	93	75	95	70	86	65	931

Figure 2

Review and Classification of 86 Fatal Accidents Reported During
Compiled by EEI's Accident Prevention Committee from
(Electric Shock and B

				PATH OF CURRENT						
				VICTIM		EQUIPMENT				
				ENTRY	EXIT	ENERGIZED	GROUND OR 2ND CONT.	VOLTAGE	OCCUPATION	
ELECTRIC SHOCK OR BURN 65 CASES	LINE WORK ON POLES 33 CASES	CONTACTS ESTABLISHED WHILE CLIMBING OR WORKING IN POSITION BUT WITHOUT CUTTING OUT OR LOSING WORKING BALANCE	HANDS 17 CASES	Hand	Hand	Sec. Wire	Sec. Wire	240-120	Lineman	1. Sh
				L-Hand	L-Leg	Trans.Lead	Sec. Wires	4160-	Lineman	2. Di
				L-Hand	Chest	St.Lt.Cond.	-	4160-2400	Lineman	3. Re
				R-Hand	L-Hand	Service Neut.	Trans. Neut.	4160-2400	Lineman	4. In
				Hands	R-Leg	Pri. Cond.	Neutral	4160-2400	Lineman	5. In
				R-Hand	L-Hand	Trans. Neut.	Com. Neut.	4160-2400	Lineman	6. Tr
				L-Hand	L-Leg	Pri. Cond.	Tel. Wire	7200-5000	Line Forema	7. Pu
				R-Hand	Feet	Pri. Cond.	Creo. Pole	12000-7200	Lineman	8. Re
				R-Hand	R-Arm	Pri. Cond.	Creo. Pole	12000-7200	App. Linema	9. Sh
				L-Hand	R-Hand	Cut-Out	Neutral	12000-7200	Lineman	10. Cl
				Hands	Feet	Pri. Cond.	Creo. Pole	12470-7200	Lineman	11. De
			CASES	Hands	Feet	Pri. Cond.	Trans. Case	12470-7200	Lineman	12. At
				R-Thumb	L-Leg	Pri. Cond.	Pole Grd.	13200-7600	Lineman	13. In
				L-Hand	R-Hands-Feet	Arm or Rod	Grd. Wire	34500-20000	App. Linema	14. Wh
				L-Hand	L-Leg	Cond.	Snub Chain	69000-40000	Lineman	15. "J
				L-Hand	R-Hip	St.Lt. Cond.	St.Lt. Cond.	Series St.Lt.	Lineman	16. Cl
				R-Hand	Legs	DE Jumper	Steel Tower	Induced volt.	Lineman	17. At
			ARMS 7 CASES	R-Arm	L-Shoulder	Sec. Wire	Guy	-124	Lineman	18. Re
				L-Arm	Stomach	Delta Bus	Trans. Case	-1440	Lineman	19. Op
				R-Arm	R-Chest	Pri. Cutout	Sec. Wire	4160-2400	Lineman	20. Re
				R-Elbow	R-Foot	Pri. Wire	Serv. Neut.	4160-2400	Lineman	21. Re
				L-Arm	R-Leg	Pri. Cond.	Pole	6900-	Lineman	22. Cl
				L-Arm	L-Foot	Pri. Cond.	Pole	7200-5000	Lineman	23. Ma
				L-Elbow	L-Foot	Disc.	Pole	12480-7200	Lineman	24. Ma
			HEAD	Head	L-Leg	Pri. Wire	Sec.	4160-2300	Lineman	25. Re
			BODY 3 CASES	L-Side	R-Side	Serv. Neut.	Serv. Neut.	-125	Lineman	26. Pu
				R-Side	Hands	Pri. Wire	Pri. Wire	2300-	Lineman	27. Ma
				Chest	L-Ankle	Pri. Cond.	Creo. Pole	-7200	Lineman	28. Tr
			LEGS	R-Thigh	R-Shoulder	Sec. Wire	Neutral	240-120	Lineman	29. Ma
		FLASH		NO CONTACT				13200-7600	Lineman	30. Sk
		LOST BAL.		L-Shoulder	R-Knee	Cutout Lead	Guy	4160-2400	Lineman	31. Sl
		LOST BAL.		R-Hand	L-Leg	Pri. Riser	Trans. Bolt	12000-7200	Lineman	32. Re
		SLIP		R-Hand	L-Hand	Cutout	X-Arm Brace	12500-7200	App. Linema	33. Wh
	LINE WORK ON GROUND 12 CASES			L-Hand	Legs	Pri. Cond.	Earth	4160-2300	Helper	34. Re
				L-Hip	Feet	Pri. Wire	Earth	4160-2400	Truck Drive	35. Ha
				R-Hand	Body	Grd. Wire	Grd. Rod	7200-	Groundman	36. Di
				R-Hand	Feet	Boom Control	Earth	7200-	Lineman	37. Wh
				R-Hand	L-Foot	Pri. Wire	Earth	8000-	Serviceman	38. Ma
				Hand-Body	Feet	Pri. Wire	Earth	8320-4800	Groundman	39. Ti
				L-Hand	Feet	Ext. Cord	Earth	12500-7200	Truck Drive	40. Bl
				R-Hand	Foot	Guy	Earth	13800-7200	Serviceman	41. St
				Arms-Chest	Feet	Creo. Pole	Earth	69000-40000	Lineman	42. St
				L-Hand	R-Ear	Digger	Brush	2300-	Lineman	43. Hy
				R-Shoulder	L-Foot	Digger	Earth	2300-	Laborer	44. Sa
				Hands	Feet	Truck	Earth	12500-7200	Groundman	45. Ma
	LADDER TRUCK			R-Hand	L-Arm	Sec. Wire	Sec. Wire	242-119	Lineman	46. Ch
	UNDERGROUND			Hand	Hand	Sec. Tap	Cable Rack	240-120	Helper	47. In
	AT STATIONS OR AROUND EQUIPMENT BUS STRUCTURES ETC. 16 CASES 75.5%	ENERGIZED BUS		Arm	Hand	Bus	Steel Struct.	4160-2400	Electrician	48. Ex
		LINES-RISERS LEADS		L-Arm	Legs	Line	Frame	4160-2400	Lineman	49. Ma
				Body	R-Foot	Phase Wire	Steel Girder	13800-	Lineman	50. Ch
				Head	Feet	Riser	Trans. Case	41600-24000	Lineman	51. Cl
		DISCONNECT SWITCH		R-Hand	Feet	Disc.	Steel Struct.	12500-	Electrician	52. At
				--	--	Disc.	Steel work	26000-15000	Elect. Con	53. Ti
				Face	Foot	Sw. Blade	Steel Struct.	115000-67000	Lineman	54. On
		MISC. EQUIPMENT		R-Elbow	L-Hand	Fuse	BX Cable	4160-2400	Utility Ma	55. Fa
				Hand	Hand	Fuse	Fuse Holder	4800-	Lineman	56. Re
				Hands	Feet	Winch Line	Earth	12700-7200	Electrician	57. Mo
				R-Side	R-Leg	Pot Trans.	Grd. Wire	23000-	Splicer	58. In
				Arm	Arm & Feet	Fuse Clip	Steel Struct.	34500-	Electrician	59. Cl
		FLASH		--	--	--	Trans. Tank	34500-	Station Ma	60. Si
		BURNS		--	--	--	--	22500-31000	Elect. Eng	61. Pr
				--	--	--	--	69000-	Sta. Opera	62. On
				--	--	--	--	110000-63600	Electrician	63. En
	REPAIR SHOP			Back	L-Hip	Pri. Bushing	Trans. Case	-7200	St.Lt.Main	64. Wa
	CUSTOMER'S HOME			R-Side	L-Side	Refrigerator	Range	240-120	Serviceman	65. Co

ted During 1958 Within the Electric Light and Power Industry
nit from Detailed Reports Submitted to the Institute
noc nd Burn Cases)

ATION		DESCRIPTION
an	1.	Shaping up secondary jumpers. Wearing leather gloves wet with perspiration and having hole in thumb.
an	2.	Disconnected pri. taps that remained hot due to being deadened in same insulator groves with line primaries.
an	3.	Repairing broken St. Lt. wire energized by cross with primary several blocks away. Not wearing rubber gloves.
an	4.	Installing trans. Victim working on sec. when riser contacted pri. making ungrounded trans. momentarily alive.
an	5.	Installing additional pri. without rubber gloves. Contacted live uncovered pri. with armor rod, held in hand.
an	6.	Transferring trans. pri. neut. from old to new neutral. Injured in series with the two when neutral broke at trans.
Forema	7.	Putting line hose on primaries using leather gloves. Made contact. Rubber gloves were in his belt bag.
an	8.	Relocating pole. Pulling up dead primary which swung up into live conductor 4 ft. above.
Linema	9.	Shaping jumper so as to use hot line tool. Jumper contacted live primary. Not belted in. Fell to ground.
an	10.	Climbed pole prematurely and contacted fused cutout before line had been de-energized.
an	11.	Dead ungrounded line slacked off when untied. Sagged onto live line where they crossed. Not wearing rubber gloves.
an	12.	Attempting to make hot tap. Did not have rubber gloves on.
an	13.	Installing line hose. Made contact thru hole in rubber gloves and keeper. Staples found in glove bag.
Linema	14.	While removing bundle of armor rods from hand line. End contacted live wire.
an	15.	"J" hook on hot line lift tool became detached at pole. Hot wire swung back against injured.
an	16.	Closed series circuit thru body when he contacted both legs of energized circuit. Not wearing rubber gloves.
an	17.	Attempted to straighten jumper after removing grounds. Induced voltage from parallel 110KV circuit.
an	18.	Reached over uncovered sec. wire that injured apparently assumed to be a neutral. Made contact above rubber gloves.
an	19.	Opened trans. to change taps. Contacted Delta bus. Had left one primary disc. cutout closed.
an	20.	Reaching under double arm to loosen arrester. Contacted bottom of primary cutout.
an	21.	Reached across top of double arms for jumper. Contacted uncovered primary wire.
an	22.	Clearing storm damage. Had completed closing phase on top arm. Moved down pole. Not known why he slumped over wire.
an	23.	Made contact above glove when he reached over one conductor to tie in outside conductor.
an	24.	Made contact on open type disconnect while passing hand line around transformer riser.
an	25.	Reached out to work on wire being pulled in, contacted uncovered primary wire while straddling sec. wires.
an	26.	Pulling slack on new service while in contact with 2 uncovered neutrals. New neutral contacted live secondary.
an	27.	Made contact on conductor thought to be de-energized. Overlooked jumpers that were feeding line.
an	28.	Transferring primary to new pole. Lost control of hot stick. Conductor contacted body.
an	29.	Made contact on uncovered secondary while attempting to connect in drops.
an	30.	Skinning jumper. End flipped into live conductor causing flash to transformer case and secondary rack.
an	31.	Slipped and contacted end of lead extending thru cutout while straddling uncovered guy.
an	32.	Reached out to straighten secondary leads. Climber cutout. Made contact on primary riser.
Linema	33.	While using shotgun stick, slipped and contacted top of cutout. Had climbed too high.
er	34.	Reinstalling down pri. wire. Pri. had been opened but was alive thru secondaries.
k Drive	35.	Handling new wire being pulled in with rubber gloves. New wire contacted live pri. on same x-arm.
ndman	36.	Digging hole at pole. Cut grd. wire off. Made contact between energized grd. wire and grd. rod.
an	37.	While operating hydraulic boom. Boom contacted line overhead.
iceman	38.	Made contact on down wire he had been dispatched to repair.
ndman	39.	Tieing handline on wire being pulled in. Splice caught on x-arm. Flipped up into primary.
k Drive	40.	Blasting pole hole. Blast threw primer wires into live pri. above. Victim holding end of extension cord.
iceman	41.	Standing with hand on guy when pri. was cut in for test. Guy alive from tel wire crossed with pri. 2 spans away.
an	42.	Steel arm on pole being set contacted energized line. Fatal to one of five men handling pole.
an	43.	Hydraulic boom shifted into line after digging hole due to probable leak in hydraulic system.
rer	44.	Same as 43. Double fatality. Fell against energized tractor.
ndman	45.	Made contact on truck while "A" frame was against live line above.
an	46.	Checking secondary wires in span from ladder truck. Made hand and underarm contact.
er	47.	In manhole. Made contact on energized secondary stub that had been left uninsulated.
trician	48.	Extending sub-sta. bus. Climbed ladder to put fuse holder in cutout. Contacted bus.
an	49.	Made contact while placing rubber blanket over live bus work.
an	50.	Changing position, fell from girder onto conductor. Wearing climbing irons while on steel girder.
an	51.	Cleaning 2400V bus for connector. Raised up into tied off 41.6KV bus above.
trician	52.	Attempted to disconnect line side of disc. sw. that had been opened but line not de-energized.
t. Cons	53.	Tieing ladder to steel work. Caused flashover between disconnect and steel work.
an	54.	On steel structure. Blown off balance by wind. Fell into energized airbreak switch.
ity Man	55.	Fastening BX lighting circuit from inside switchroom. Contacted fuse assembly.
an	56.	Replacing fuses without rubber gloves. Had not opened switch on feed side.
trician	57.	Mounting derrick on truck under 12KV circuit. Victim holding running line. Boom raised into circuit.
cer	58.	Installing potheads from platform. Left safe work area and contacted live pot trans.
trician	59.	Climbed steel structure apparently to check maintenance work to be done on ground switch.
tion Man	60.	Sitting on top of 10,000 KVA transformer waiting for oil level to drop. Enveloped in flash from HV bus above.
t. Engr	61.	Preparing to run ground test of station mat. Carried test wire up ladder. OCB flashed over.
. Operat	62.	One station transformer switched out to change taps. Climbed adjacent transformer in error.
trician	63.	Enveloped in flashover from switch terminal to steel, while descending structure.
Lt.Maint	64.	Walked next to HV bushing of transformer under test. Test area not barricaded.
viceman	65.	Completed circuit between defective ungrounded refrigerator and properly grounded range.

				OCCUPATION
FALLS 5 CASES 5.8%	LINE WORK CASES	FALL FROM POLE OR TOWER	Dead end hook broke under strain.	Lineman
		FALL WITH POLE 2 CASES	Pole rotted at ground level. Pole snapped off at ground level.	Lineman Line Helper.
	FALL FROM TOWER TRUCK		Truck struck by RR train.	SL Serviceman
	FALL THRU FLOOR OPENING		At plant boiler house.	Iron Worker
STRUCK BY 3 CASES 3.5%	TREE LIMB		Clearing limb from wires.	Serviceman
	TREE		Felling 100 ft. dead fir tree.	Sub-Foreman
	MOTOR VEHICLE		Working at side of road.	Truck Driver
CAUGHT IN 6 CASES 7.0%	TWO TRUCKS EUCLID TRUCK TRUCK COAL CAR AND LOCOMOTIVE CRANE CRANE COAL CONVEYOR		Pulling old pole. At Hydro-Elect. dam project. Street service box. Coal yard at station. At Hydro-Elect. station. Power Plant.	Truck Oper. Inspector Splicer Yardman Repairman Coal Handler
DROWNED 2 CASES 2.3%	CANAL RIVER		Shoveling snow from catwalk. Unloading coal barges.	Patrolman Coal Handler
MOTOR VEHICLE 3 CASES 3.5%	ON HIGHWAY ON HIGHWAY ON HIGHWAY		Head-on collision. Ran off highway. Ran off highway.	Supervisor Serviceman Dist. Mgr.
BURNED 1.2%	GENERATING PLANT		Cleaning solvent.	Mechanic
MISC. 1.2%	HEAT EXHAUSTION		Distribution Yard.	Patrolman

certed effort to prevent electric shock and burn injuries, the reduction in severity rate is encouraging because of the direct relationship between electric shock and burn fatal cases and the severity rate shown in the analysis.

While the severity rate declined in 1958, the frequency rate remained at 6.39 lost time injuries per million man-

TABLE I—EIGHTEEN YEARS OF FATAL ACCIDENTS IN THE ELECTRIC LIGHT AND POWER INDUSTRY—1941 TO 1958 INCLUSIVE
(From EEI Accident Prevention Committee Summaries based on detailed reports received.)

Year	*Total*	*El. Shock or Burn*	*Falls*	*Motor Vehicles*	*Struck By*	*Burned*	*Caught In*	*Drowned*	*Miscellaneous*
1941	121	90	11	8	4	2	3	1	2
1942	121	81	19	11	6	3	0	0	1
1943	117	81	14	3	7	5	1	3	3
1944	82	62	6	5	6	1	2	0	0
1945	116	79	14	6	5	4	3	3	2
1946	105	68	19	8	5	0	2	2	1
1947	173	125	20	8	13	3	2	1	1
1948	149	102	21	13	6	2	2	0	3
1949	176	134	16	13	6	1	5	1	0
1950	141	102	13	9	4	4	0	5	4
1951	165	121	21	8	4	4	1	5	1
1952	125	90	7	17	4	0	1	1	5
1953	134	93	18	12	6	1	0	0	4
1954	120	75	17	14	6	0	2	0	6
1955	122	95	12	0	5	2	1	3	4
1956	97	70	10	6	4	2	2	3	0
1957	112	86	11	6	2	4	1	1	1
1958	86	65	5	3	3	1	6	2	1
18-YEAR TOTAL	2262	1619	254	150	96	39	34	31	39

DISTRIBUTION OF ACCIDENT TYPES (By Percentages of Total Accidents)

	1958	*18-Year Average*	*18-Year Range Min.*	*Max.*
Electric Shock or Burn	75.5	71.6	62.5	77.9
Falls	5.8	11.2	5.4	18.1
Motor Vehicles	3.5	6.6	0.0	13.2
Struck By	3.5	4.3	1.8	7.5
Burned	1.2	1.7	0.0	4.3
Caught In	7.0	1.5	0.0	7.0
Drowned	2.3	1.4	0.0	3.5
Miscellaneous	1.2	1.7	0.0	5.0

	DESCRIPTION
	66. Fell 49 ft. from lineman's platform when safety strap belted in around dead end bells was severed.
	67. Fell with pole to ground when all wires had been untied from unsupported pole. 68. Replacing series SL fixture with multiple. Fell with pole while pulling strain on new secondary.
	69. Replacing St. Lt. bult. Parked too close to RR track. Thrown from ladder 26 ft. to ground.
	70. Stepped on unsupported end of grating being welded in place. Fell to basement.
	71. Limb under tension flew and struck victim on head when it was cut.
	72. Broken section of tree rolled down hill and over employee when it was dropped.
	73. Company truck legally parked. Motorist, under influence, drove across center lane. Struck victim.
	74. Crushed between two trucks when second truck backed into work position. 75. Truck backed over victim when he walked into its path while doing soil inspection work. 76. Working in service box. Passing truck ran over opening, crushed victim's head. 77. Crushed between couplers while attempting to couple car to crane. 78. Crane overturned when load was rotated, pinning operator under cab. 79. Inspecting conveyor. Caught between coal belt and chute.
	80. No witnesses - No evidence of how victim fell into the canal. Wearing standard safety equipment. 81. No witnesses - Last seen on dock helping tie up barge. Body found in water 7 days later.
	82. Public truck driver went to sleep. Truck crossed center line. Struck Company vehicle head on. 83. Ran off road at curve. Overturned when brought back on highway. Neck broken. 84. Apparently fell asleep. Struck abutment. Fractured skull.
	85. Inspection of induced draft fan. Overturned solvent can. Ignited clothing.
	86. Fatal heart attack following heat exhaustion. Had been working on lawnmower.

hours of exposure, the same as in 1957. However, the trend in the past years for frequency has been downward. The 1958 figure was 31.3 percent below the 10-year average. Fatal accidents adversely affect the severity rate but are responsible for less than 2 percent of the frequency rate.

Figure 1 is an 18-year picture of our fatal accidents. It shows that of 2,262 fatalities, 1,619 were victims of electric shock or burn.

Figure 2 is a summary of the electric shock and burn cases. It can be seen that the majority of fatal accidents occurred in overhead line work. This has been the case each year. Forty-two linemen were victims of electric shock and burn in 1958.

Table I is a breakdown of the fatalities into types of accidents for an 18-year period. It also shows, under Distribution of Accident Types, the percentages of each type for 1958 and for the 18-year period. The only change in the columns under the heading "18-Year Range" was for caught-in cases which reached an all-time high of 7 percent of the total and was the second highest type of accident in 1958.

Hand contacts of employees doing line work on poles, as always, led the list in 1958 with 17. Arm contacts were next with seven. Contact on the body accounted for three. Contact on the head was responsible for one fatality. Perhaps the wearing of hard hats is catching on and has paid off. While there were 43 fatal head contacts in the 10-year period, only four occurred during the last three years.

There were 12 fatal accidents to employees working on the ground in connection with overhead lines. Four such accidents involved an energized truck, pole hole digger or crane.

We have the knowledge and the protective equipment but haven't seen to it that it is used. When will we learn that we must take the time to put on rubber protection and not take short cuts? When will we learn to consider that all lines and equipment are ALIVE until tested and proved to be DEAD and then GROUNDED?

It would seem apparent, as one reads the individual reports on these fatal accidents, that the work position

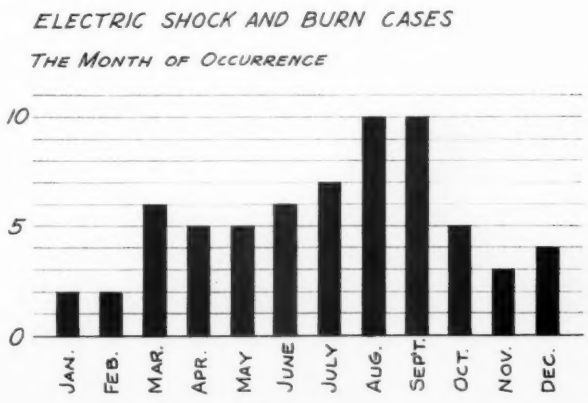


Figure 3

that the man had taken was responsible not for the accident but surely for its being a fatal injury. One of the best sayings of Doug Stewart, who made the first Review and Classification of Fatal Accidents was, "IF YOU MUST FAIL, FAIL SAFELY."

A greater use of rubber gloves, a better job of covering up and more thought given to work position undoubtedly will prevent many serious injuries.

Fatal accidents at stations and on or around equipment, buses, sub-stations and switching structures, due to electric shock and burn, numbered 17. This was three more than in 1957 and five less than the 10-year average. Failure to maintain proper clearance from energized equipment was responsible for the greater number of these accidents.

Figure 3 indicates the months during which fatal electric shock and burn accidents occurred. Thirty-three of the 65 were in the hot summer months of June, July, August and September. During these same four months 25 of the 45 accidents occurring while doing "line work on poles and on the ground" were reported. This is proof that extra precautions are needed during hot weather when a contact, especially one on secondary or primary voltage, can result in more serious consequences.

Commonwealth Edison Installs Automatic System to Regulate Production of Electricity

AN automatic dispatch system which exactly regulates production in 10 generating stations to meet the demand of its two million customers in the Chicago area has been installed by Commonwealth Edison Co.

Willis Gale, Chairman of Commonwealth, announced that the new electronic control equipment, built by General Electric Co., has been placed in regular service. The cost, including installation expense, was approximately $700,000.

Selects from 37 Generators

The device not only regulates electricity output to match demand, Mr. Gale said, but it also selects from among the 37 turbine generators the ones which can most economically produce additional electricity as required.

"Conversely," Mr. Gale added, "when the demand is decreasing the device selects the turbine generators producing electricity at the highest cost and reduces the output of those units."

The central portion of the installation, which is among the first of its kind in the country, is located in the utility's power supply control room in the Edison building in downtown Chicago.

This equipment continually determines the increment amount of generation needed and instantly translates it into a cost of power bid. This bid is transmitted to the generating stations where similar control equipment assigns the load to units which can produce power at this cost.

Most Economical Path Chosen

The computer determines which turbine generators can carry a given electrical load most economically on the basis of several variable factors, such as the efficiency of the individual units, fuel cost and transmission cost to the point of use.

Of the 37 generating units tied in with the new control system, some are as far away as 140 miles.

The 37 units have aggregate net generating capability of 4,634,000 kilowatts, or approximately 92 percent of the total capacity of the Edison system.

The device will be valuable not only in assuring the most efficient use of Edison power production facilities but will also maintain proper flow on interchange of power between Edison and the other utilities with which it is inter-connected.

This latter factor is important because Edison is part of a huge power pool in the east central part of the United States. Smooth operation of the pool requires that each of the inter-connected utilities be responsible for its own requirements.

Customer demand for electricity is continually changing and no minute of the day is precisely like the minute before.

The load on the Edison system can and does vary from one minute to the next by as much as 50,000 kw—or the equivalent of the amount of electricity used by the customers in a community of 80,000 population.

NEMA's 'Snowman' Award

ESTABLISHMENT of the "Snowman" award to be made annually to the manufacturer making the outstanding contribution to the air conditioning industry's "Beat the Heat" promotion has been announced by National Electrical Manufacturers Association.

Created by the Room Air Conditioner Section of NEMA, the award will be a statuette of a snowman holding an air conditioner. Air conditioner manufacturers throughout the industry are eligible to compete.

The Publicity Committee of the Section, after reviewing the promotions of all manufacturers active in the campaign, will make the award Aug. 15.

I Want to Know About The Electric Industry

11th Edition of Booklet Available from EEI

THE United States electric industry in 1958 made the largest annual addition of generating facilities in its history.

The net installation of 14 million kilowatts of new capability was a 10 percent gain over 1957. Investor-owned electric companies last year spent $3.8 billion—a record high investment—in new plant and equipment.

Kilowatt-hour sales in 1958 totaled 569 billion, exceeding the previous year's sales figures by more than 11 billion.

Average use of electricity by residential customers also climbed to an all-time high of 3,366 kwhr, 192 kwhr over 1957.

These are some of the answers to questions frequently asked of Edison Electric Institute and revealed in the 11th edition of "I Want to Know About the Electric Industry," just published by EEI.

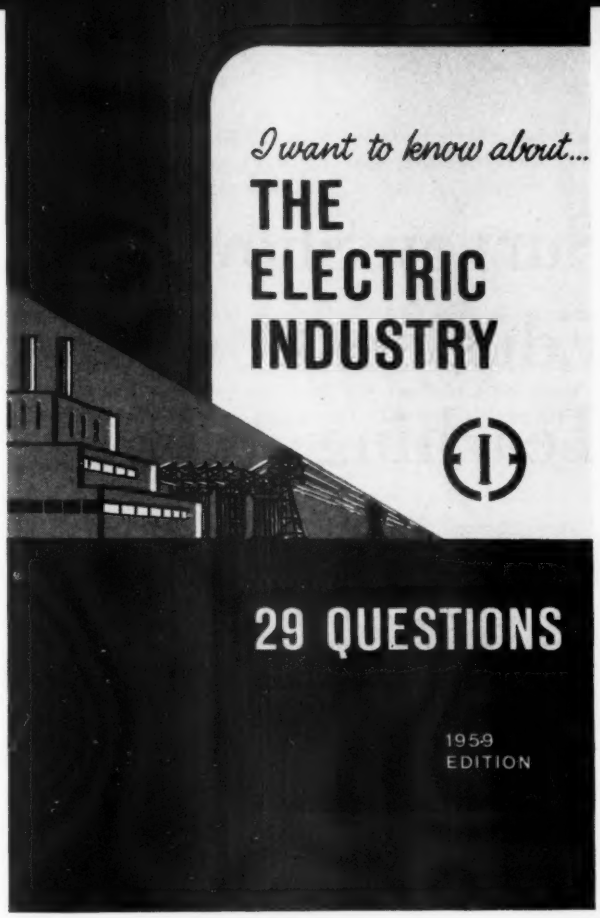
The booklet has become one of the most popular publications of the Institute. It is prepared in response to continuing requests from many individuals and organizations for concise, authentic and readily available information on various aspects of the electric industry. It is prefaced with a group of six easy-to-read charts showing 30 years of electric industry growth. The charts include the generating capacity, electricity production, kilowatt-hour sales, residential use and cost and customers of the entire industry and the construction expenditures of the investor-owned companies from 1928 through 1958.

The 32-page booklet is printed in two colors. Each question is illustrated with a related sketch and accompanying tables amplify the text of the answers.

In addition to the latest available figures, estimates of future prospects are included wherever appropriate.

The booklet reveals that:

- The United States in 1958 produced 38.7 percent of the world's electricity, exceeding the combined output of the next seven countries.
- More than 42 million kw of new capacity has already been scheduled for 1959-1962 and later.
- More than 130 electric companies are participating in 27 atomic projects and nuclear power assures ample fuel for future electricity requirements.
- Total sales of the electric industry will exceed 600 billion kwhr in 1959.
- In 1958, there were 56 million customers of the electric industry, and about one million new customers are being added each year.

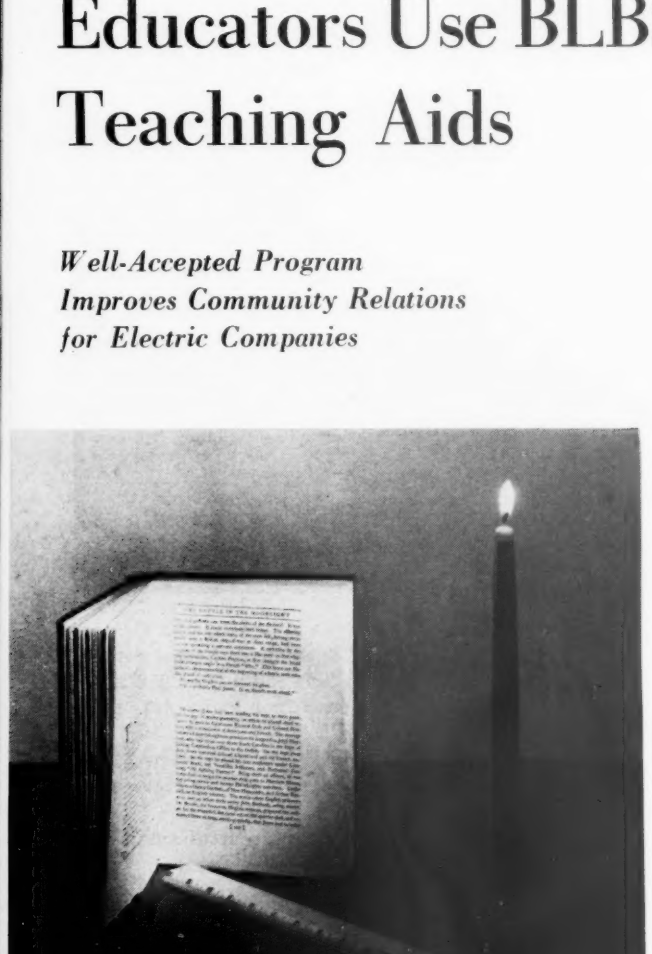


- While the average use of electricity by residential customers has reached an all-time high, the 1958 average price was down to 2.53 cents per kwhr, less than half of what it was in 1933.
- The average American worker in 1957 used 25,032 kwhr of electricity—the equivalent of 374 extra men helping each worker.
- In 1958, taxes took about 23 percent of total electric revenues, salaries and wages 18 percent and fuel 16 percent.
- The earnings of employees in the electric industry in 1958 averaged $101.68 weekly, $17.97 or 21 percent more than the average for all manufacturing workers.
- Increasingly efficient power plants have made possible a steady reduction of the amount of coal needed to produce a kilowatt-hour of electricity. In 1933 the average was 1.47 pounds; in 1958 it had reached a new low of 0.90 pounds.
- Steam plants produced about 78 percent of electricity in 1958 and hydro plants more than 21 percent.
- Investor-owned electric companies produced and sold more than three quarters of the electricity in the United States in 1958.
- Total taxes of investor-owned electric companies amounted to nearly $2 billion in 1958, about $100 million more than in 1957.

The booklet may be ordered from Edison Electric Institute, 750 Third Ave., New York 17, N. Y. Prices are: 25 cents per copy for one to 99 copies; $12 per hundred for 100 to 999 copies; $86 per thousand for 1,000 to 9,999 copies; $79 per thousand for 10,000 or more copies.

Survey Shows Educators Use BLBS Teaching Aids

Well-Accepted Program Improves Community Relations for Electric Companies

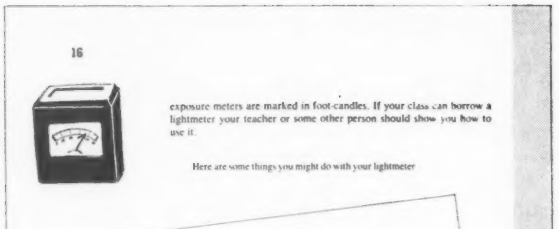


Dramatically although not accurately depicted in this Better Light Better Sight Bureau photograph is the concept of the footcandle and the means of measuring and prescribing quantity of light, one of the basic "Facts of Light."

By Walter G. McKie

General Sales Manager, Rochester Gas and Electric Corp., and Chairman, BLBS Bureau

THE annual flow of Better Light Better Sight Bureau teaching aids into America's schools today is 5½ times greater than it was before this electric industry-sponsored organization introduced its Cooperative Teaching Aid Plan 18 months ago.



16

exposure meters are marked in foot-candles. If your class can borrow a lightmeter your teacher or some other person should show you how to use it.

Here are some things you might do with your lightmeter

1. Use a lamp with a shade on it. Hold the meter below the lamp. Move it away from the lamp until the needle is at the middle of the scale. Then remove the lamp shade. Can you explain why the amounts of light are different?

2. Choose a place where you think you have good light for reading. Find out how much light is on your book when you hold it in a normal reading position. Do you have 20-40 foot-candles of light? This is recommended for such seeing tasks.

3. Use a lamp without a lampshade. Measure the light received two feet from the lamp. Then measure the light received three feet from the lamp, then four feet away. Can you see what is happening to the amount of light that shines on a surface as we move it farther away from the lamp?

to measure light reflected by an object

to measure light shining on an object

This is a page from the BLBS Bureau teaching aids for fourth, fifth and sixth grade classes in science and health. These materials have been well received by educators because their emphasis on activities (do this, try this) create experiences which foster real learning and helpful habits.

This greatly accelerated activity has spurred us in the Bureau to take a close look at the program, to solicit and analyze the reactions of the educators who are receiving and using these materials, and to study the implications of the program for the local electric utility as well as our industry as a whole.

The reaction of educators to our materials is quite gratifying. Some of the results have been pleasantly surprising even to those of us who have been very close to this activity.

It is particularly satisfying to make this report in the midst of the Bureau's 25th Anniversary year and at a moment when an outside organization—the American Optometric Association—has presented the Bureau with a special award for "a quarter century of outstanding contribution to human welfare."

What we have found out is that the teachers overwhelmingly approve of our teaching aids and use them in the classroom to an extent far beyond our fondest hopes. The returns from a mailing of 3,000 questionnaires to teachers this spring reveal that the average teacher has exposed our light-and-sight educational information to 77.2 students for an average of 8.7 hours. I think I should point out here that, outside of footing the bill, the electric utility did not have to lift a finger to achieve this. The teachers, reading our advertisements in their professional magazines, wrote in and requested that we send these classroom aids. Having studied these materials, they voluntarily decided to devote some of their time—8.7 hours of it—to tell our story to more than 77 pupils this semester.

Although we wrote in June only to teachers who had received kits between February and June, 70 percent of those who responded to our questionnaire reported that they had already used the materials. Eighty-six percent of the respondents said that they plan to use the materials this fall. This means that our figures on number of pupils and number of hours are conservative because so many teachers will use the program a second time.

In addition to filling in the blanks on our questionnaires, many teachers wrote on the back and in the margins to tell how much they liked the materials and how in many ways they supplemented our suggested uses (by such means as classroom and corridor displays, homework, special projects, etc.) and how grateful they are to the local power company for making these teaching aids available.

Of course, each kit sent out contains a note to the effect that the kit is sent "with the compliments of the (name of company)," and our people fill in the name of the electric utility company. Approximately 100 companies, representing more than 24 million total meters, are participating in the plan.

When these and other facts coming out of our survey were presented recently at a meeting of our Executive Committee, certain facts stood out: such success is bound to "snowball" in the schools, greatly accelerating the rate of inquiries and, of course, the cost to the sponsors. I should add that we are talking in terms of mils, rather than cents, per meter. One of the advantages of this new plan is that its overall cost to the sponsor, as well as its unit cost per student (or per home, if you'd rather look at it that way) is very low. So we expect our shipments—which this spring were 80 percent ahead of last spring—to continue to increase. Sponsorship—now 24 million meters as opposed to 20 million last spring—will, we feel sure, continue to grow.

A Matter of Concern

But what really seems most important to us at this moment are the present and future implications for investor-owned utilities. What are and what should be the motives behind this activity? Who in the utility should be most concerned with it?

We have found that most of the companies with whom we have discussed these points are finding the money for it in the residential sales budget, and some from the commercial sales budget. A very few are looking at it as company public relations.

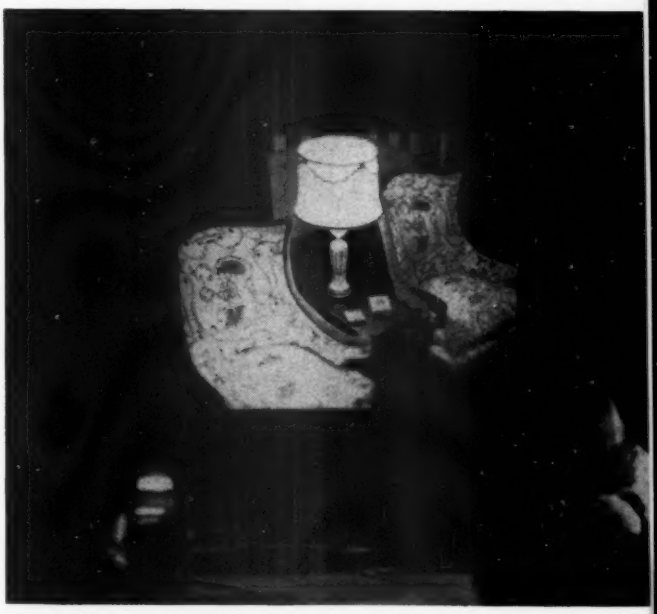
It is understandable that sales managers would find such a program of value, because it has many present and future implications in the field of lighting sales. We are, among other things, creating better informed customers of the future from among the schoolchildren who are learning good habits in the care of the eyes and the use of light for seeing.

In addition to this slightly postponed future benefit, we find a tremendous current benefit from the fact that children bring home this information and exert pressure on their parents to provide good lighting. In addition, high-school children have $9 billion of their own money (allowances and earnings) to spend annually.

But in spite of these benefits to our sales departments, we feel that our companies are missing a bet if they look upon the BLBS educational programs *only* as a form of market development and, therefore, look for some spare dollars in the sales budget to support the program.

The broader implications for the whole company in community public relations transcend the market development aspects. Here is an activity which can reach the entire community, conveying information on a subject vital to all—namely health. This activity is entirely self-generated: the inquiry comes from the teacher and the instruction is conducted by the teacher. It is highly acceptable because it was prepared with a non-commercial approach by educators and with the help of the National Education Association (which permits its own publication, *Teaching about Light and Sight*, to be in the kit).

Yet a couple of our bigger sponsors, with a million or more meters, will spend less than $5,000 this year to do this job.



Film strips are provided with the Bureau's teaching aid kit for junior high school general science classes. Students learn not only the basic principles of light and sight, but also some specific applications, as shown in photograph above.

We are making available to the industry detailed information accumulated from our spring survey. Among the facts tabulated are the results of our request on the original inquiry from the teachers to indicate the name of the electric company serving the schools. At that time 52 percent of those queried could not provide this information. Of these, three-quarters left the space blank and the other quarter filled in incorrect information. Among the latter were such incorrect answers as "Joe's Electric Shop."

When J. K. Busby reported at this year's EEI Convention that 21 percent of our customers are misinformed about who serves them, I think he was conservative, at least according to our findings. I also like to think that if we could query these teachers again, *after* the teaching aid kit was sent out, we'd find that we've chopped a big slice away from that 52 percent who didn't know the answer originally.

The Credit Picture

Results of a Survey of 79 Utility Companies Conducted Under the Joint Supervision of the Credit and Collection Committees of the EEI Accounting Division and AGA Accounting Section

STEADY increases in sales and customers for the 12-month period ended Dec. 31, 1958, compared with the corresponding period ended Dec. 31, 1957, were revealed in a survey of 79 utility companies. The survey, conducted under the joint supervision of the Credit and Collection Committee of EEI and American Gas Association, included 34 electric, 24 combination and 21 gas companies.

Sales for the 79 utilities showed an increase of 6.7 percent; there was a 1.9 percent increase in customers. Residential sales were up 8.8 percent and there was an increase of 2 percent in the number of residential customers. Outstanding in dollars was 2.88 percent of sales, up 8.9 percent.

Charge-off dollars increased 24.1 percent. Seventy-two companies reporting accounts charged off indicated an increase of 8.4 percent. Net charge-off for overall sales was .24 percent, compared to .21 percent for 1957. Net residential charge-off was .51 percent, compared to .45 percent in 1957.

Forty companies reported an increase in outstanding dollars for residential sales of 7.4 percent. This indicates a slowing down of the trend in outstanding residential dollars as the increase in 1957 was 14.2 percent. The East North Central section of the country showed a reduction in total and residential dollars outstanding.

The number of disconnect notices increased 10.9 percent and non-payment disconnects increased 19 percent. Deposits were up 6 percent in number and 9.1 percent in dollars.

RATIO OF NET CHARGE-OFF TO SALES, AND PER CENT INCREASE

Companies	To Residential Sales			Companies	To Total Sales		
	1958	1957	% Inc.		1958	1957	% Inc.
21 Gas	0.56	0.43	30.2	21	0.39	0.30	30.0
34 Elec.	0.55	0.50	10.0	34	0.21	0.23	(8.7)*
24 Comb.	0.45	0.42	7.1	24	0.20	0.18	11.1
All	0.51	0.45	13.3	All	0.24	0.21	14.3

* Decrease.

TABLE I—CREDIT AND COLLECTION EXPERIENCE OF U. S. ELECTRIC AND GAS UTILITIES BY AREA—12 MONTHS ENDED DEC. 31, 1958
Per Cent Change From Corresponding Period—1957

	East North Central	East South Central	Middle Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central	United States
Sales (Dollars)	+ 4.5	+ 8.5	+ 5.2	+ 6.3	+ 6.1	+11.3	+ 9.0	+ 4.3	+ 7.8	+ 6.7
Customers	+ 1.7	+ 2.6	+ 0.8	+ 4.3	+ 1.0	+ 2.8	+ 2.8	+ 1.8	+ 1.9	+ 1.9
Outstanding in Dollars	− 2.9	+13.4	+18.7	+14.2	+12.7	+ 2.8	+ 8.1	+ 3.1	+ 5.5	+ 8.9
Outstanding Per Cent of Sales	− 6.7	+ 3.7	+12.5	+ 5.1	+ 6.2	− 8.8	− 1.1	− 1.0	− 2.2	+ 2.1
Disconnect Notices	+23.2	− 6.3	− 2.2	+20.4	+12.4	+42.3	+15.3	+ 6.0	+ 9.8	+10.9
Non-Payment Disconnections	+19.0	+18.8	+ 5.6	+13.5	+26.0	+38.7	+25.8	+13.7	+15.5	+19.0
Deposits on Hand (Number)	+ 7.3	+ 3.1	+ 9.2	+ 7.9	+ 7.6	+ 8.7	+ 6.5	+18.9	− 1.1	+ 6.0
Deposits on Hand (Dollars)	+17.4	+ 4.8	+12.2	−30.1	+ 3.2	+45.2	+ 8.6	+ 9.4	+ 0.6	+ 9.1
Final Bills (Number)	+ 4.6	+ 0.5	+ 1.1	+ 4.2	− 5.6	+ 2.1	+ 5.7	+ 7.0	+ 4.3	+ 3.3
Accounts Charged Off (Number)	+15.5	+ 5.8	+ 1.3	+22.9	− 5.5	+ 2.6	+11.4	+17.7	+11.4	+ 8.4
Net Charge off (Dollars)	+45.9	+26.6	+12.1	+11.8	+ 2.0	+15.9	+29.3	+24.8	+29.3	+24.1
Net Charge Off (Cents Per Customer)	+43.5	+23.4	+ 6.6	+ 7.2	+ 1.0	+12.7	+25.7	+22.6	+26.9	+21.9
Ratio—Net Charge Off to Sales	+44.4	+16.7	+ 5.3	+ 4.2	− 3.8	+ 3.6	+17.4	+17.6	+23.1	+14.3

Arizona Public Service, Philadelphia Electric Win Reddy Awards

Don Willis, left, Vice President, Marketing, Arizona Public Service Co., receives plaque from Ashton B. Collins, President, Reddy Kilowatt, Inc., for top honors in the Reddy Kilowatt Annual Report Contest for 1958.

ARIZONA Public Service Co. and Philadelphia Electric Co. tied for the top award in the 20th Reddy Kilowatt Annual Report Contest sponsored by Reddy Killowatt, Inc., New York.

The following awards also were presented by Ashton B. (Ash) Collins, Reddy Kilowatt President:

Class A (400,000 or more customers), First Prize, Consumers Power Co.; Honorable Mention, Georgia Power Co. and Northern States Power Co.

Class B (200,000 to 400,000 customers), First Prize, Northern Indiana Public Service Co.; Honorable Mention, Central Power and Light Co. and Puget Sound Power & Light Co.

Class C (100,000 to 200,000 customers), First Prize, Rochester Gas and Electric Corp.; Honorable Mention, Hawaiian Electric Co., Southwestern Public Service Co., and Wisconsin Power and Light Co.

Class D (up to 100,000 customers), First Prize, Iowa Southern Utilities Co.; Honorable Mention, Montana-Dakota Utilities Co. and Southern Nevada Power Co.

Holding Companies, First Prize, Middle South Utilities, Inc.; Honorable Mention, Central & South West Corp. and American Electric Power Co.

Companies Outside the United States, First Prize, Shawinigan Water and Power Co.; Honorable Mention, The Mexican Light and Power Co., Ltd., and Quebec Power Co.

Judges for the contest were Fischer S. Black, Editor and Publisher, *Electrical World* magazine; J. C. Bevis, President, Opinion Research Corp.; J. F. Childs, President, Irving Trust Co.; and Frederick W. Page, President, Tri-Continental Financial Corp.

George Conover, Vice President, Philadelphia Electric Co., co-winner of the top award in the Reddy Killowatt Annual Report Contest, receives a plaque from Mr. Collins. This was the 20th year of awards.

New Resuscitation Manual Available from EEI

THE EEI Accident Prevention Committee has prepared a new *Resuscitation Manual—A Guide for Electric Utility Companies* which is now available from Edison Electric Institute, 750 Third Ave., New York 17, N. Y. It is designed to be used as a reference work on the subject of manual resuscitation. The booklet describes and shows through illustrations the more successful methods of resuscitation and offers supplemental information which will aid a company in selecting the best method to be used.

The publication should be useful as a general reference for safety men, first aid men, department heads and foremen of electric utilities. In addition, it is designed to promote cooperation and understanding among the various groups interested in resuscitation techniques and problems. Material in the manual was approved by a committee of doctors selected from the medical directors of some of the largest electric utilities in the nation.

The *Resuscitation Manual* is priced at 50 cents each for one to nine copies and 32 cents each for 10 to 99 copies, postpaid in the United States. Prices for larger quantities are available upon request.

IBM Operation at Detroit Edison Reduces Costs, Simplifies Clerical Requirements, Increases Stores Loading Efficiency

Mechanically Printed Bills of Material

By Fred Warmbier

Supervisor, Overhead Lines Costs,
Plant Accounting Department, The Detroit Edison Co.

As an electric utility we issue approximately 18,000 orders each year for the construction, betterment or maintenance of our overhead lines. In what we believe to be a big step forward, our plant accounting department, in cooperation with other departments, recently completed the introduction of mechanically printed bills of material. All of the operations are presently being performed with standard IBM tabulating equipment with the following results:

- Reduction in the number of bills of material.
- Elimination or simplification of clerical requirements.
- Mechanical job computations for budget release and time requirements.
- Easier physical handling of the bills of material.
- Faster loading of material.
- Better budget control.

The general principles involved and outlined should lend themselves to thoughtful consideration.

Former Practice

Our past practice had been to have the material requirements for each of the 18,000 orders prepared by an overhead lines estimator. These items were then manually extended by a clerk to obtain the estimated material and labor costs and an estimated construction time by applying material cost and time standards to the estimated quantities of material. Three copies of each page of the bill of material were typed to serve the stores and overhead lines department's field and office requirements.

In order to facilitate estimating and the manual preparation of the bills of material, printed estimator's bills of material were formerly utilized. Space was provided on the estimator's bill of material for the necessary manual computations. This form then served as an overlay to prepare the necessary additional three typed copies of the bill of material. Approximately 14 bills of material could be used for each job to estimate the material required in the various account classifications. The average job required approximately five of the 14 bills of material available. These bills of material were typed in triplicate to fulfill the aforementioned department requirements. This meant that approximately 270,000 bills were required to complete our orders, plus the original 90,000 prepared by the estimators. We estimate the preparation and handling cost of the bills at 20 cents for each copy or $54,000 per year.

Approximately one year ago, a committee of the various departments concerned was formed to review this and other related problems. From this committee evolved the following procedure:

Each estimator now has available printed estimator's bills of material listing the various items of material which may be used in line construction. This material is listed in logical estimating sequence. The estimator's bill of material forms are packaged independently by page number in order to permit individual page revision when necessary, without waste. It also permits the estimator to use only those pages required for a particular job. A separate estimate release data form is prepared for each job showing the budget number when required, the municipal location number of the order, and any special material instruction to be picked up by the machine data processing department for printing on the machine-printed bill of material.

After a job has been estimated, the bills of material and the estimate release data sheet are forwarded to the machine data processing department for key-punching. The items are then mechanically priced for material, estimated labor installation cost and standard installation time. Tabulated reports for budget releases, estimated construction time and the printed bills of material showing only those items estimated are then prepared from these cards.

In the printing of the bills of material, the original estimated sequence is changed to a warehouse loading sequence, it being understandable that the most logical estimating sequence is not necessarily the best stocking sequence, nor the best sequence for the loading of material for the field. Our loading sequence is a combination of these latter two factors.

Accurate Reporting of Items Required

The item number printed on the bill of material is the plant accounting department's number assigned to the stock number. This combines like items of material which will be identified on the plant records. It is also an order to the foreman that accurate reporting of these items is required.

The average stock price used to estimate the material portion of the budget release for a given job remains the same regardless of the current price of the material when it is ordered from the warehouse. This, in effect,

rolls the price back to the stock prices used in the budget release for a given job. Subsequent releases against the budget, however, are estimated at average current stock prices, which picks up the roll-back in prior budget releases and makes for accurate budget control.

Three copies of the bill of material are mechanically printed on three different colored papers. By utilizing color, we eliminate the possibility of incorrect routing and thus facilitate handling.

At the time the job is estimated, a code number is indicated by the estimator; this code number becomes a mechanical instruction for printing only those items with like code numbers on a separate page of the mechanically printed bill of material. These instructions can be given for each job up to nine pages. Thus, if on a large construction order it is desired to have the material estimated and delivered in various material grouping at various times, the page number as assigned will permit this type of call-out of material without the necessity of issuing partial bills.

After the bills are mechanically printed, two copies are forwarded to the central stores loading warehouse, and one copy, plus the original papers and necessary summarized tabulated reports of the jobs, are returned to the issuing office. Here, recordings are made from the tabulated reports of the amount released from the budget and the estimated time recorded to complete the job.

The original cards retained by the machine data processing department are placed in a "tool file" which, in effect, represents the jobs on order for which the material has not been ordered from the warehouse. A tabulation of this file furnishes an analysis of estimated material requirements.

When material for a specific job is required, the stores warehouse is notified by the overhead lines department to load the material as called for on the specified job and page code number. If it becomes necessary to substitute material or furnish quantities other than those called for, this information is recorded manually by the stores department on the printed bill of material. The bill is then returned to the machine data processing department.

Here, a "puller card" is punched, indicating the job number and page code number of the job for which material has been disbursed. Any material adjustments are recorded by crediting the original estimated quantity and punching a new debit card for the quantity and/or stock number of material actually disbursed. The puller card is then collated against the "pool file" and the original cards pulled. These cards, plus any adjustment cards, then become the recording for material disbursements for that particular job. After these cards have been utilized for the various material records they are then placed in another "pool file" which represents material actually disbursed and charged to construction work in progress.

When the job has been completed, the foreman responsible for installing the material listed on a particular sheet number indicates his crew number on his copy. This is important because more than one foreman may be responsible for the installation of a given job. This copy is then routed to the machine data processing department where a puller card is punched indicating the job number, page code number and foreman number. This card is then collated against the construction work in progress pool file and the appropriate cards pulled. The foreman's number is then automatically punched in these cards in order to prepare job cost analysis and efficiency reports by foreman and crew. These cards are also utilized to prepare the detail necessary for the distribution of costs to work orders, for plant records and other statistical data.

This report is only an outline of the procedures being followed. The various minor ramifications necessary to make this system function have not been covered. The savings have been considerable; for example, the number of papers processed has been reduced by approximately 100,000 sheets, printing costs have been reduced, clerical requirements eliminated or simplified and stores loading efficiency increased. The acceptance of a mechanically printed bill of material by all concerned has been very gratifying.

What Shall We Do to Preserve Freedom?

(*Continued from page* 268)

- We should discuss the facts about the American economy with our families at home.
- We should see our school board and examine our school books to be sure our children are being taught the facts about America and our economic system. We should talk with our teachers.
- We should conduct "employee information programs" among our employees and be sure to measure the results.
- We should urge our neighbors in the community to conduct similar programs.
- We should form discussion groups among our community leaders.
- We should make ourselves available to address community groups.
- We should join in regional and national activities devoted to this cause.

This is no easy battle. But it is no more difficult than winning the Revolution and setting up our system of individual freedom in the first place. It is no more difficult than winning World War I and World War II. And we can lose our freedom by this "drifting" just as effectively as we can by losing a war.

It is a big task, but Americans are accustomed to handling big tasks. It will take intelligence, hard work and determination. And our reward? The same opportunities for our children we have enjoyed for ourselves.

It is up to us.

Electrical System and Equipment Committee Meeting

- *Report on the Operation at Shippingport*
- *Checking Load Tap Changes with Oscillographs*
- *Digital Computations of Technical Problems*

D. W. TAYLOR
Chairman

THE Electrical System and Equipment Committee held its 78th meeting at the Pick-Roosevelt Hotel in Pittsburgh, Pa., May 25-26, with approximately 120 members and guests attending.

The program consisted of papers, reports and discussions under the sponsorship of R. G. Meyerand, Vice Chairman of the committee; F. J. Berger, Chairman of the Subcommittee on System and Equipment Troubles; K. L. Wheeler, Chairman of the Subcommittee on Equipment and Station Design; V. J. Hayes, Chairman of the Subcommittee on System Engineering and Operation; R. M. Pennypacker, Chairman of the Subcommittee on Equipment and Station Operation and Maintenance; and A. P. Fugill, Chairman of the System Planning Subcommittee.

Closed Session

On Monday morning a closed session program of the Subcommittee on System and Equipment Troubles was presented. Various system disturbances and apparatus failures were informally discussed by the committee and guests.

A round table discussion of subjects of general interest which had been submitted previously by members was held in closed session on Monday afternoon; R. G. Meyerand was the moderator of this discussion period.

On Tuesday morning, under jurisdiction of the Subcommittee on Equipment and Station Operation and Maintenance, J. W. Asmann sponsored a paper, "One Year's Operation at Shippingport," which was presented by G. M. Oldham of the Duquesne Light Co. This paper was prepared jointly by E. M. Parrish, J. E. Gray, G. M. Oldham, C. F. Jones, and E. J. Woolever, all of Duquesne.

Mr. Oldham pointed out that whereas a considerable amount of material has been prepared on the detailed design, fabrication and construction problems encountered in building the Shippingport Station, very little has been written about its performance. Shippingport is a joint project of Duquesne and the United States Atomic Energy Commission. Shippingport was built and is being operated to determine what the problems will be in making nuclear power available in the future to support our ever-expanding need for more energy; Shippingport's performance is that of a development plant and is not necessarily typical of the nuclear power stations that will be built in the future.

Shippingport was designed to explore different light water cooled and moderated reactor cores. A great deal has been learned already in this regard and has been used to improve the design of the second seed and is being utilized in the design of a second complete core. The principal difference between the Shippingport Atomic Power Station and a conventional coal-fired station is that the Shippingport Station has a pressurized water nuclear reactor for a heat source.

Concern for Safety

One of the primary concerns in the design, construction and operation of Shippingport is safety. Extensive safety features have been built into the station and its operating personnel have been well trained to cope with any emergency.

The only sources of radioactivity which could seriously endanger public safety are the fission products developed in the fuel during power operation. These fission products are enclosed with uranium in sealed zirconium cladding to prevent their release. Beyond this zirconium cladding are two more sealed physical barriers consisting of the 1½-inch-thick steel reactor coolant system piping and the one-inch-thick steel reactor plant container mentioned earlier. Surrounding all this is the five-foot-thick concrete enclosure with only a few openings to permit personnel and equipment entry.

Mr. Oldham said the general performance of the Shippingport Atomic Power Station during its first year of operation has been very satisfactory. Its initial startup and loading to full capacity proceeded on schedule without any major difficulties or equipment failures, and those encountered since operation began have not been too far out of proportion with those of conventional stations. Surprisingly enough, station availability at Shippingport has been hampered more by equipment failures in the turbine plant than in the reactor plant. Since the initial approach to criticality on Dec. 2, 1957, there have been 15 unscheduled reactor safety shutdowns or "scrams" as they are often called. Six of these occurred during the first two months of operation, eight from March to September, 1958, and one in March, 1959.

Operation Flexible

Operating experience to date on the Shippingport Station indicates that it is more flexible than a conventional coal-fired station. Since the reactor has a negative temperature coefficient, it is inherently stable and adjusts its own heat output in response to varying load demands to maintain a constant average reactor coolant temperature. Operator action during power operation is essentially that of a monitoring nature to detect any abnormal conditions and to take corrective action when necessary. Two items pertaining to maintenance which have proved very time consuming are equipment inaccessibility and radiation protection requirements. The movement of maintenance personnel and equipment to and from job locations is awkward because the major portion of all reactor plant equipment is housed within four large steel containers.

The second paper, sponsored by J. W. Asmann, was presented by J. A. Herold of the Baltimore Gas and Electric Co. It described a method of checking the operation of load tap changers using a direct writing oscillograph. Since certain types of tap changers have a number of switches that must be opened and closed in a definite sequence so that no winding is ever opened or shorted (except through the proper impedance), it is necessary for the testing device to show the functions of each switch and its relation with all other switches. The oscillograph is admirably suited for this purpose, Mr. Herold said.

This method of checking the operation sequence of tap changers was developed after a normal inspection of a transformer showed misalignment of contacts in the selector switch. This test has been applied only to one type of tap changer; that is where the transfer switches are employed to make and break the circuit and the selector switches change the taps.

Savings with Digital Computations

A. P. Fugill, Chairman of the System Planning Subcommittee, presented a paper prepared by L. W. Coombe of The Detroit Edison Co. This paper was entitled "Digital Computations of Technical Problems Saves $1,000,000." Mr. Fugill said this evaluation has shown that Detroit Edison has realized substantial savings from the application of technical and engineering problems to digital computers. In addition, many other benefits are realized from this type of solution that are difficult to express in terms of dollars but are of definite value to a company. Some of these are increased accuracy, more thorough investigations, faster results, better utilization of engineers, fewer assumptions required, reduced mental fatigue, and increased job satisfaction.

T. W. Schroeder, Vice Chairman of the System Planning Subcommittee, presented a progress report on activities of this group. The proposed reorganization of the subcommittee has been approved by the Engineering and Operating Division Executive Committee. The following modifications will be made: the subcommittee will be slightly larger to permit a broader representation from EEI companies; the liaison with other committees will be strengthened; and the communications channels will be improved.

The computer task force is continuing its activity and has already distributed a newsletter. Other projects under study by the subcommittee include Outage and Interruption Recording, System Planning Practices and Load Forecasting.

The program of the Subcommittee on Equipment & Station Design consisted of the presentation of a report on recent activities of ASA C-76, Bushings, prepared by J. H. Vivian; a report by E. F. DeTurk on recent activities of ASA C-62, Lightning Arrestors; a report on activities of ASA C-57, Transformers, by T. D. Reimers; a report on ASA C-72, Radio Electrical Coordination, by G. P. Fallon; a paper on recent West Penn Power Co. construction projects; and a symposium on safety in substations through design.

J. Q. Wray sponsored a paper by K. N. Reardon, "Recent West Penn Power Co. Construction Projects." Mr. Reardon explained that West Penn Power is one of three integrated companies comprising the West Penn Electric system. The area served by West Penn Power is heavily industrial with steel, glass, non-ferrous metals, and coal mines predominant. The transmission system is mainly 132-kv, pole line construction with 25 kv and 44 kv being used for subtransmission.

A feature of the West Penn design is use of two main buses and a single reserve bus to which any line can be transferred through a reserve bus oil circuit breaker. Mr. Reardon showed pictures of a new 132-kv substation design characterized by an open type of construction lending itself readily to the use of cranes and aerial rigs for erection of sections previously assembled on the ground; the design accentuates simplicity and safety with respect to maintenance and operation.

The final part of the program consisted of a symposium on safety in substations, through design. J. R. Hanford of the Public Service Electric and Gas Co., and a member of the EEI Accident Prevention Committee, presented a report on injuries in substations in 1957 which had been prepared by this committee. Mr. Hanford pointed out that substation accidents were rare and a great deal of credit could be given to the design engineers. He asked for continued cooperation in this regard.

S. C. Hoover moderated a symposium on safety in substations in which R. A. Hunt of The Cleveland Electric Illuminating Co., E. E. Ramm of the Ohio Edison Co., P. E. Nelson of The Toledo Edison Co. and J. W. Miller of the Duquesne Light Co. were members. Various specific design features used by these four companies were reviewed.

Insurance Committee Meeting

- *Insurance and Nuclear Power Projects*
- *Report on Excess Liability Coverage*
- *Liaison Between EEI, AGA Committees*

D. E. WILLIAMS
Chairman

THE Insurance Committee held its annual spring meeting at Williamsburg (Va.) Inn, on March 9 and 10.

At the meeting, members A. W. Reid and I. M. Carpenter were presented with certificates recognizing their more than 30 and 25 years, respectively, of service to the Committee and its predecessors.

W. O. Randlett, Chairman of the Rating and Forms Subcommittee, ex-

plained that the Rating and Forms Subcommittee and Excess Fire and Allied Lines Subcommittee overlapped to such extent that it was the recommendation of both subcommittees that they be merged under the name of Fire and Allied Lines Subcommittee. Mr. Randlett reported on discussions which are continuing with the Inter-Regional Insurance Conference regarding deductible form fire insurance. Several recent articles regarding deductible fire insurance were brought to the attention of Committee members. This subcommittee will continue its discussion with the Inter-Regional Insurance Conference on the matter of deductible form fire insurance as well as other matters that may be referred to the subcommittee.

A. G. Jillette, Chairman of the Subcommittee on Nuclear Projects, gave a brief review of the status of insurance as it applies to nuclear projects. Although progress in this area has been slow, as additional experience is attained more progress can be expected. Cooperation between the insurance industry, the government, and the various manufacturing or processing elements is good and should result in a continuing healthy relationship.

Excess Liability Report

M. C. Petersor, Chairman of the Subcommittee on Excess Liability, reported that this type of coverage can now be obtained domestically with premiums based on payroll instead of revenue. He also reported that flat premiums for each layer of coverage may be obtained on excess liability insurance purchased from Lloyd's.

R. R. MacKay, Jr., Chairman of the Subcommittee on Fire Protection, reported on the progress which was being made by the joint Fire Protection Subcommittee and Task Force in several areas which had been assigned to it. The entire Insurance Committee asked Mr. MacKay to convey its thanks to the Subcommittee and Task Force for the fine work it is doing.

R. H. Brandow, Chairman of the Subcommittee on Boiler and Machinery, reported that a joint meeting was being planned with a corresponding AGA subcommittee to discuss the subject of the coverage of transformers under boiler and machinery policies, as well as questions in policy forms and ratings which had been referred to the Subcommittee for discussion.

R. D. Constable, Chairman of the Subcommittee on Employee Benefits, discussed some of the requirements under the Federal Welfare Plans Disclosure Act. As is the case with any such new requirement, many questions remained to be answered and some time will doubtlessly elapse before clear interpretations will be obtained regarding some of the provisions of the act.

Following the presentation of subcommittee reports, the Committee held a discussion relative to the advisability of establishing liaison between the AGA Insurance Committee and the EEI Insurance Committee on matters which are of mutual interest to both committees. It was generally agreed that this principle is sound, and the chairmen of these respective committees will endeavor to see that this liaison is established.

The meeting concluded with a general discussion of individual company experiences in the areas of loss, loss adjustment, etc.

The next meeting of the Committee will be held in Boston, Oct. 15-16.

Trade Ads Announced for EEI Contest

THE first advertisements in trade publications announcing EEI's $100,000 Light for Living contest are appearing in the July and August issues of both *Lighting* magazine and *Lamp Journal*, as well as in the August issue of *Illuminating Engineer* and three issues of *Home Furnishings Daily*.

The contest offers four first prizes —four $20,000 Light for Living Medallion Homes constructed on the winners' lots. More than 1,000 other prizes will include appliances, lamps and packages of assorted light bulbs.

The contest will be announced to the consumers in a two-page *Life* magazine advertisement on Sept. 14 and in full-page ads in the Oct. 10 and Nov. 7 issues of the *Saturday Evening Post* and the Oct. 13 and Nov. 10 issues of *Look*.

The two-page trade advertisement is aimed at dealers in lamps, fixtures and bulbs. Contestants may obtain the entry booklets from these dealers. A series of "true - or - false" questions which must be answered by the contestant requires that he read through the booklet for clues to correct answers. The booklet contains information on how to Live Better Electrically with a Light for Living Home.

Contest booklets also will be available at electric utility companies and model homes beginning in September during National Home Week.

The contest, designed to educate the consumer to proper lighting needs in the home, is expected to draw 300,000 to 500,000 entries.

Report on Power Facilities in the Soviet Union

REPRINTS of a report on electric power facilities in the Soviet Union which was recently printed in *Electric Light and Power* magazine are available from the Haywood Publishing Co., 6 North Michigan Ave., Chicago, Ill.

The comprehensive report on the subject is drawn from information brought back to this country by the delegation of electrical industry executives which visited the Soviet Union last summer and from other sources. The report is titled "Can Russia Overpower U.S.?"

The electric industry executives visited the USSR under the sponsorship of EEI and the Association of Edison Illuminating Cos. and by arrangement with the U.S. Department of State. The delegation was headed by Walker L. Cisler, President of The Detroit Edison Co.

People in Power

RALPH B. JOHNSON, Executive Vice President, The Hawaiian Electric Co., Ltd., has been elected President of the utility, succeeding L. A. HICKS, retired. CARL J. SCHIFFERS, Vice President, was made Administrative Vice President, and RICHARD L. SUMMERS, Secretary, was named Vice President.

Mr. Johnson joined the utility in 1936 as an engineer and in 1939 was appointed secretary. After serving in the U. S. Navy as a commander in the submarine service in World War II, he returned to active employment in 1945, at which time he was named vice president. He was advanced to administrative vice president in 1952 and was named executive vice president in 1957. Mr. Johnson was graduated from Massachusetts Institute of Technology with a B.S. degree in chemical engineering. He also completed the advanced management program at Harvard Graduate School of Business Operation.

Mr. Schiffers joined the company in 1939, after several years with Pacific Gas & Electric Co. In 1940 he became personnel manager, in 1945 assistant to the president, and in 1947 vice president and assistant secretary and industrial relations manager. He studied civil engineering at the University of California.

Mr. Summers, a retired Navy officer, joined the company in 1947 as assistant personnel director. He was appointed assistant secretary in 1952 and secretary four years later. He attended UCLA and while in the Navy attended navy flight school at Pensacola and the U. S. Armed Forces War College.

Three new vice presidents have been elected by Puget Sound Power & Light Co. J. H. CLAWSON, Vice President and Treasurer, was named Senior Vice President; FREDERICK W. KIMBALL, who was associated with Booz, Allen & Hamilton, becomes Vice President - Administration; and EDWARD A. FONTAINE, Manager of the Electric Department of Stone & Webster Service Corp., was named Vice President-Operations. Mr. Clawson joined the utility in 1933 as an auditor after 11 years in that capacity with Stone & Webster. Mr. Kimball also was a research engineer for Stanford Research Institute. Mr. Fontaine had been with Stone & Webster since 1949.

Central Maine Power Co. has named three new vice presidents. WILLIAM H. DUNHAM, Vice President since 1954, becomes Executive Vice President; HARRY E. HAMILTON, Treasurer, was elected Vice President and Treasurer, and NATHANIEL W. WILSON, General Counsel of the company since 1958, was named Vice President. Mr. Dunham has been with CMP since 1939 when it was a subsidiary of New England Public Service Co. He was appointed executive assistant to the president in 1952 and became a vice president in 1954. He is a graduate of the Cornell Law School. Mr. Hamilton joined the company in 1926 and Mr. Wilson joined CMP in 1926 as an attorney. Mr. Wilson is a graduate of the Harvard Law School.

THOMAS H. CARENS, Vice President in Charge of Public Relations, Boston Edison Co., has retired after nearly 25 years of service with the company. THOMAS J. GALLIGAN, JR. succeeds Mr. Carens as chief of the company's public relations organization. Mr. Carens was formerly associated with the *Boston Herald* and later with the New England Power Association.

PHILIP A. FLEGER, Chairman of the Board and President, Duquesne Light Co., has been selected as western Pennsylvania's outstanding industrialist for 1959 by the Western Pennsylvania Chapter of the Society of Industrial Realtors. The award is given to an industrialist who, in the opinion of an impartial and distinguished board of awards, has made a most significant contribution to the industrial development of Western Pennsylvania in the public interests.

Mr. Fleger led his company into the building of the Shippingport Atomic Power Station—the world's first full-scale nuclear power station devoted exclusively to civilian needs. Since World War II, he has directed his company's record-breaking expansion, costing over $300 million, probably the largest improvement program of any company in western Pennsylvania.

RUSSELL A. SHUMAKER was recently elected Vice President, Eastern Operations, Pennsylvania Electric Co., and MORRIS M. DEVORRIS was elected Vice President, Western Operations. FRANK W. WOMER, JR. succeeds Mr. Devorris as Manager of the Eastern Division, and DAVID J. BECHTOLD succeeds Mr. Womer as Manager of the Central Division.

Mr. Shumaker started his utility career in 1922 in the company's construction department. In 1955 he was selected to reorganize and manage the Central Division. Then he served as president of Brockway Light, Heat & Power Co. until it was merged with Pennsylvania Electric last year.

Mr. Devorris began his career with the former Penn Central Light & Power Co. as a radio engineer in 1930. He held various positions in the engineering department until 1946 when he became industrial sales engineer for Pennsylvania Electric's Eastern Division. He was made division manager last year.

HOWARD M. SWARTZ, Director of Legal Services, West Penn Power Co., has been elected a Vice President of the company.

As Vice President, Legal Services, he will continue his executive responsibilities for the utility's legal, claim, and government and industry relations activities. Mr. Swartz spent six years in general law practice before moving into the electric utility legal field—first with the Philadelphia Co. and its subsidiaries in 1939, and later with Duquesne Light Co. for 18 years. He was graduated from Harvard College and the University of Pittsburgh Law School. He has been in the legal profession 26 years.

GEORGE W. MILLER, Assistant Treasurer of the Philadelphia Electric Co., has been elected Treasurer of the company, succeeding C. WINNER, retired. Mr. Miller is a Drexel Institute graduate in industrial engineering. He was employed by the utility in 1924, and progressively advanced in supervisory posts in the personnel department and the statistical division.

Mr. Miller is a past president of the utility's Employees Association, and is active in Edison Electric Institute.

STUART V. WILLSON, President, Northern States Power Co. (Wisconsin), has been installed as President of the Wisconsin Utilities Association. F. L. LARKIN, Vice President, Industrial Relations, Wisconsin Electric Power Co., retiring President, was installed as the organization's Chairman. Other officers installed were: Vice President, HARRY I. MILLER, Vice President of Division Operations, Wisconsin Public Service Corp., and Treasurer, LESTER M. LA PORTE, Vice President and Controller, Wisconsin Electric Power Co.

TRAVER L. BERRY, Assistant Controller, has been elected Controller of The Connecticut Light & Power Co. He succeeds the late LEO A. MAYO. Mr. Berry was graduated from Syracuse University in 1934 and the New York University Graduate School of Business in 1941. He also attended the University of Maryland Law School and the University of Pennsylvania. He joined CL&P in 1954.

W. E. MONTGOMERY, General Manager of Operation, Southern California Edison Co., was recently elected Vice President of the company. He began his career with the company in 1926. His posts have included operating engineer, general superintendent of system operation, and manager of operation.

E. A. SHULTZ, Manager of Electrical Operations, and ARCHIE KRAAKEVIK, Manager of Services and Shipplies, Illinois Power Co., have been elected Vice Presidents of the utility. D. F. MEEK was named Secretary.

Mr. Shultz joined the company in 1937 as a member of the engineering staff. He became chief system supervisor in 1946 and later manager of electrical operations. Mr. Kraakevik joined Illinois Power in 1926 with the real estate and tax department in Chicago. He became purchasing agent in 1946.

L. R. PATTERSON, Assistant Vice President of Electrical Operations, was recently elected a Vice President of Public Service Co. of Colorado. In his new capacity, he will continue to have executive responsibility for future planning of electric facilities to serve the rapidly growing needs of the area and, in addition, will assume added administrative responsibilities in the company's electric operations. Mr. Patterson is a 36-year veteran with the company. In recognition of his contribution to the planning and development of electric power systems and related interconnections, Mr. Patterson was made a Fellow of the American Institute of Electrical Engineers in 1957. This is the highest honor awarded by this national group.

ANNE M. FITZGERALD has been elected Secretary and Assistant Treasurer of Middle South Utilities, Inc. Miss Fitzgerald's entire business career has been spent in the utility business, beginning when she was employed by Electric Bond & Share Co. In 1935 she was employed by Electric Power & Light Corp. and appointed assistant secretary in 1944 and assistant treasurer in 1947. She had been assistant secretary and assistant treasurer of Middle South since the company was formed in 1949. Miss Fitzgerald attended Bedford Park Academy. She is a member of the American Society of Corporate Secretaries, Inc.

H. W. ATKINSON, General Manager, Cambridge Electric Light Co., has been promoted to Vice President of the company. He has been with CEL since 1935 when he was assigned to power sales and engineering. In 1949 he was appointed assistant to the general manager and in 1957 general manager. He is a director of the New England Gas & Electric Association Service Corp. and the Electric Institute, Inc.

W. J. SEDBERRY, East Texas Division Manager, Southwestern Electric Power Co., and R. W. DODSON, Superintendent of Power for the utility, have been elected Vice Presidents of the company. Mr. Sedberry joined SEP in 1931 as cashier in Gladewater, Texas, and Mr. Dodson started his career with the utility in 1934.

PHILIP L. METZGER, Personnel Director, Kansas City Power & Light Co., has been elected Vice President of the utility, and WILLIAM D. WEBB was appointed Assistant Secretary. Mr. Metzger has been with KCP&L since 1951. He served as supervisor of employment until 1953 when he was named supervisor of labor relations and employment.

D. W. JONES, Assistant Supervisor of Branches, was elected Vice President and Supervisor of Branches and a Director of Duke Power Co., succeeding THOMAS F. HILL, who has retired as Vice President and a Director. CARL HORN, JR., member of the Duke legal department, has been named General Counsel of the company, succeeding W. S. O'B. ROBINSON, JR., who has retired as Chairman of the Board and General Counsel. Mr. Robinson will continue as consulting general counsel and Mr. Hill will continue as consultant on branch operations.

Mr. Jones, a graduate of Elon College, joined Duke in 1920 as a meter reader. Mr. Horn is a graduate of Duke University and the Duke Law School. He is a member of the American, North Carolina and Mecklenburg County Bar Associations. A former partner in a Charlotte law firm, he has been with the utility since 1954.

A. J. BOWEN, Director of District Operations, The Potomac Edison Co., has been elected Vice President of the company. He will continue to be responsible for personnel, customer services, policies, public relations and other matters of a specifically local nature. Mr. Bowen joined PE as a meter reader in 1929. He was named to his last previous post in 1958.

EDWARD A. RODRIGUE, Southeastern Division Manager, Louisiana Power & Light Co., has been named Special Assistant to the President and the Vice President in Charge of Operations.

FRANK E. WIATT, Assistant Manager, Electric Sales Department, The Cincinnati Gas & Electric Co., has retired. Mr. Wiatt joined the company as a draftsman in substation design. He was appointed assistant manager, electric sales department in 1948. He served as chairman of the EEI General Power and Heating Committee and Industrial Sales Methods and Development Committee. During 1951-58 he served as chairman of the Industrial Power and Heating Group.

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Competitive Service, R. W. BASCHNAGEL ..... Rochester Gas & Electric Corp., Rochester, N. Y.
General Power & Heating, J. H. AHRENS ..... The Hartford Electric Light Co., Hartford, Conn.
Sales Methods & Development, A. D. SPILLMAN ..... Philadelphia Electric Co., Philadelphia, Pa.
Residential Group, R. G. MACDONALD ..... West Penn Power Co., Greensburg, Pa.
Home Service, JUDITH O'FLAHERTY ..... Philadelphia Electric Co., Philadelphia, Pa.
Residential Appliance Promotion, E. J. HURLEY ..... The Detroit Edison Co., Detroit, Mich.
Residential Lighting Promotion, J. R. WATERS ..... Monongahela Power Co., Fairmont, W. Va.
Residential Space Heating, J. H. K. SHANNAHAN ..... American Electric Power Service Corp., New York, N. Y.
Residential Wiring Promotion, J. R. FURBER ..... Northern States Power Co., Minneapolis, Minn.
Advertising, W. E. PIERCE ..... Commonwealth Edison Co., Chicago, Ill.
Area Development, R. P. LEE ..... The Connecticut Light & Power Co., Berlin, Conn.
Electrical Living Policy, G. W. OUSLER ..... Duquesne Light Co., Pittsburgh, Pa.
Market Research Committee, C. W. MEYTROTT ..... Consolidated Edison Co. of New York, Inc., New York, N. Y.
Sales Personnel & Training, G. J. STEFFEN ..... Union Electric Co., St. Louis, Mo.

CUSTOMER, EMPLOYEE AND INVESTOR RELATIONS DIVISION

Customer, Employee and Investor Relations Executive, C. E. OAKES ..... Pennsylvania Power & Light Co., Allentown, Pa.
Customer Relations, K. I. JACK ..... The Washington Water Power Co., Spokane, Wash.
Industrial Relations, W. H. SENYARD ..... Louisiana Power & Light Co., New Orleans, La.
Investor Relations, W. H. ZIMMER ..... The Cincinnati Gas & Electric Co., Cincinnati, Ohio

ENGINEERING DIVISION

Engineering & Operating Division Executive, W. L. CHADWICK ..... Southern California Edison Co., Los Angeles, Calif.
Electrical System & Equipment, R. G. MEYERAND ..... Union Electric Co., St. Louis, Mo.
Hydraulic Power, K. S. STRENGE ..... The Washington Water Power Co., Spokane, Wash.
Meter & Service, C. P. STAHL ..... Wisconsin Power and Light Co., Madison, Wis.
Prime Movers, T. O. THOMPSON ..... Wisconsin Electric Power Co., Milwaukee, Wis.
Transmission & Distribution, H. E. CODY ..... The Cleveland Electric Illuminating Co., Cleveland, Ohio
Transportation, W. B. STREITLE ..... Rochester Gas and Electric Corp., Rochester, N. Y.

GENERAL DIVISION

General Division Executive, P. A. FLEGER ..... Duquesne Light Co., Pittsburgh, Pa.
Accident Prevention, A. J. NAQUIN ..... New Orleans Public Service Inc., New Orleans, La.
Awards, A. M. WADE ..... The Connecticut Light & Power Co., Berlin, Conn.
Electric Power Survey, A. S. GRISWOLD ..... The Detroit Edison Co., Detroit, Mich.
Insurance, R. R. MACKAY, JR. ..... Philadelphia Electric Co., Philadelphia, Pa.
Legal, D. K. KADANE ..... Long Island Lighting Co., Mineola, N. Y.
Purchasing and Stores, H. T. SIMPSON ..... Boston Edison Co., Boston, Mass.
Rate Research, K. W. HASBROUCK ..... New York State Electric & Gas Corp., Ithaca, N. Y.
Research Projects, E. L. HOUGH ..... Union Electric Co., St. Louis, Mo.
Statistical, J. L. KENNEDY ..... Rochester Gas and Electric Corp., Rochester, N. Y.
Technical Exchange for Overseas Visitors, HARVEY BUMGARDNER ..... The Detroit Edison Co., Detroit, Mich.

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